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RCA MCR61TF30 SERVICE MANUAL

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FILE NO. SM-CTV-O-039A

COLOR TELEVISION

SERVICE MANUAL

MODEL NO. MCR61TF30/MCR66R400

MCR68R420/MCR68TF800

CHASSIS NO. CH-10C5

Please read this manual carefully before service.

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SAFETY INSTRUCTIONS AND MAINTENANCE

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE X-RAY RADIATION PRECAUTION , SAFETY PRECAUTION AND PRODUCT SAFETY NOTICE INSTRUCTIONS-BELOW.

X-RAY RADIATION PRECAUTION

1. The EHT must be checked every time the receiver is serviced to ensure that the CRT does not emit X-ray radiation as result of excessive EHT voltage. The nominal EHT for this receiver is 29KV (for 25”TV) or 30KV (for 29”TV) at zero beam current (minimum brightness) operating at AC 120V. The maximum EHT voltage permissible in any operating circumstances must not exceed 32KV (for 25”TV) or 33KV (for 29”TV). When checking the EHT, use the High Voltage Check procedure in this manual using an accurate EHT voltmeter.
2. The only source of X-RAY radiation in this receiver is the CRT. To prevent X-ray radiation, the replacement CRT must be identical to the original fitted as specified in the Parts List.
3. Some components used in this receiver have safety related characteristics preventing the CRT from emitting X-ray radiation. For continued safety, replacement component should be made after referring the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

1. The receiver has a nominal working EHT voltage of 29KV (for 25”TV) or 30KV (for 29”TV). Extreme caution should be exercised when working on the receiver with the back removed.

1) Do not attempt to service this receiver if you are not conversant with the precautions and procedures for working on high voltage equipment.
2) When handling or working on the CRT, always discharge the anode to the receiver chassis before removing the anode cap in case of electric shock.
3) The CRT, if broken, will violently expel glass fragments. Use shatterproof goggles and take extreme care while handling.
4) Do not hold the CRT by the neck as this is a very dangerous practice.

2. It is essential that to maintain the safety of the customer all power cord forms be replaced exactly as supplied from factory.
3. Voltage exists between the hot and cold ground when the TV is in operation. Install a separation transformer during repairing or connecting to any testing equipment for the sake of safety. The power of the separation transformer should exceed the rated overall power.
4. Replace blown fuses within the receiver with the fuse specified in the parts list.
5. When replacing wires or components to terminals or tags, wind the leads around the terminal before soldering. When replacing safety components identified by the international hazard symbols on the circuit diagram and parts list, it must be the company-approved type and must be mounted as the original.
6. Keep wires away from high temperature components.

PRODUCT SAFETY NOTICE

Many electrical and mechanical components in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the X-ray radiation protection afforded by them cannot necessarily be obtained by using replacements rated at higher voltages or wattage, etc. Components which have these special safety characteristics in this manual and its supplements are identified by the international hazard symbols in the circuit diagram and parts list. Before replacing any of these components read the parts list in this manual carefully. Substitute replacement components which do not have the same safety characteristics as specified in the parts list may create X-ray radiation.

Safety Symbol Description

The lightning symbol in the triangle tells you that the voltage inside this product may be strong enough to cause an electric shock. Extreme caution should be exercised when working on the TV with the back removed.

This is an international hazard symbol, telling you that the components identified by the symbol have special safety-related characteristics.

FDA This symbol tells you that the critical components identified by the FDA marking have special safety-related characteristics.

UL This symbol tells you that the critical components identified by the UL marking have special safety-related characteristics.

VDE This symbol tells you that the critical components identified by the VDE marking have special safety-related characteristics.

Maintenance

1. Place the TV set on a stable stand or base that is of adequate size and strength to prevent it from being accidentally tipped over, pushed off, or pulled off. Do not place the set near or over a radiator or heat register, or where it is exposed to direct sunlight.
2. Do not install the TV set in a place exposed to rain, water, excessive dust, mechanical vibrations or impacts.
3. Allow enough space (at least 10cm) between the TV and wall or enclosures for proper ventilation.
4. Slots and openings in the cabinet should never be blocked by clothes or other objects.
5. Please power off the TV set and disconnect it from the wall immediately if any abnormal condition are met, such as bad smell, belching smoke, sparkling, abnormal sound, no picture/sound/raster. Hold the plug firmly when disconnecting the power cord.
6. Unplug the TV set from the wall outlet before cleaning or polishing it. Use a dry soft cloth for cleaning the exterior of the TV set or CRT screen. Do not use liquid cleaners or aerosol cleaners.

KEY ICS AND ASSEMBLIES

Table 1 Key ICs and Assemblies

Serial No.	Position No.	Model No.	Function Description
1	N301	OM8839PS	Small signal processor
2	N401	TDA8350Q	Vertical output circuit
3	N852	LM317T	Tri-terminal regulator
4	N601	TDA7057AQ	Sound power amplifier
5	N001	LC86F3264AU-DIP	Microcontroller
6	N002	AT24C04/AT24C08	EEPROM
7	NY01	TDA6107Q	Video amplifier
8	DS01	HEF4053	Analog switch circuit
9	DS02	HEF4053	Analog switch circuit
10	N606	TDA9859	Audio processor
11	A101	TDQ-6F2M	Tuner

Notes: AT24C04 (N002) is for MCR61TF30 only;
AT24C08 (N002) is for MCR66R400/MCR68R420/MCR68R800.

BLOCK DIAGRAMS FOR CHASSIS

Structure Block Diagram

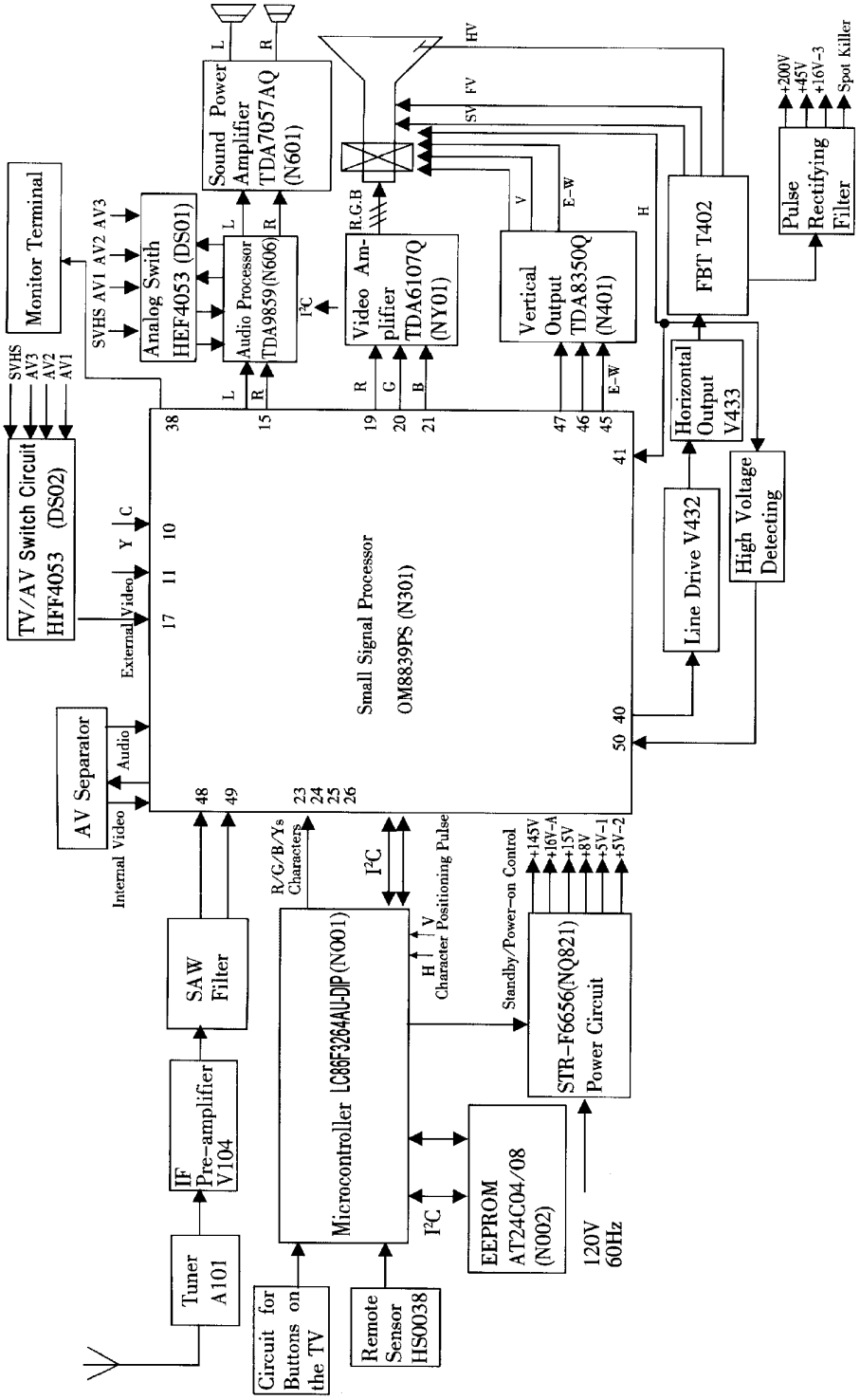


Fig. 1 Structure Block Diagram for CH-10C5 Chassis

Block Diagram for Supply Voltage System

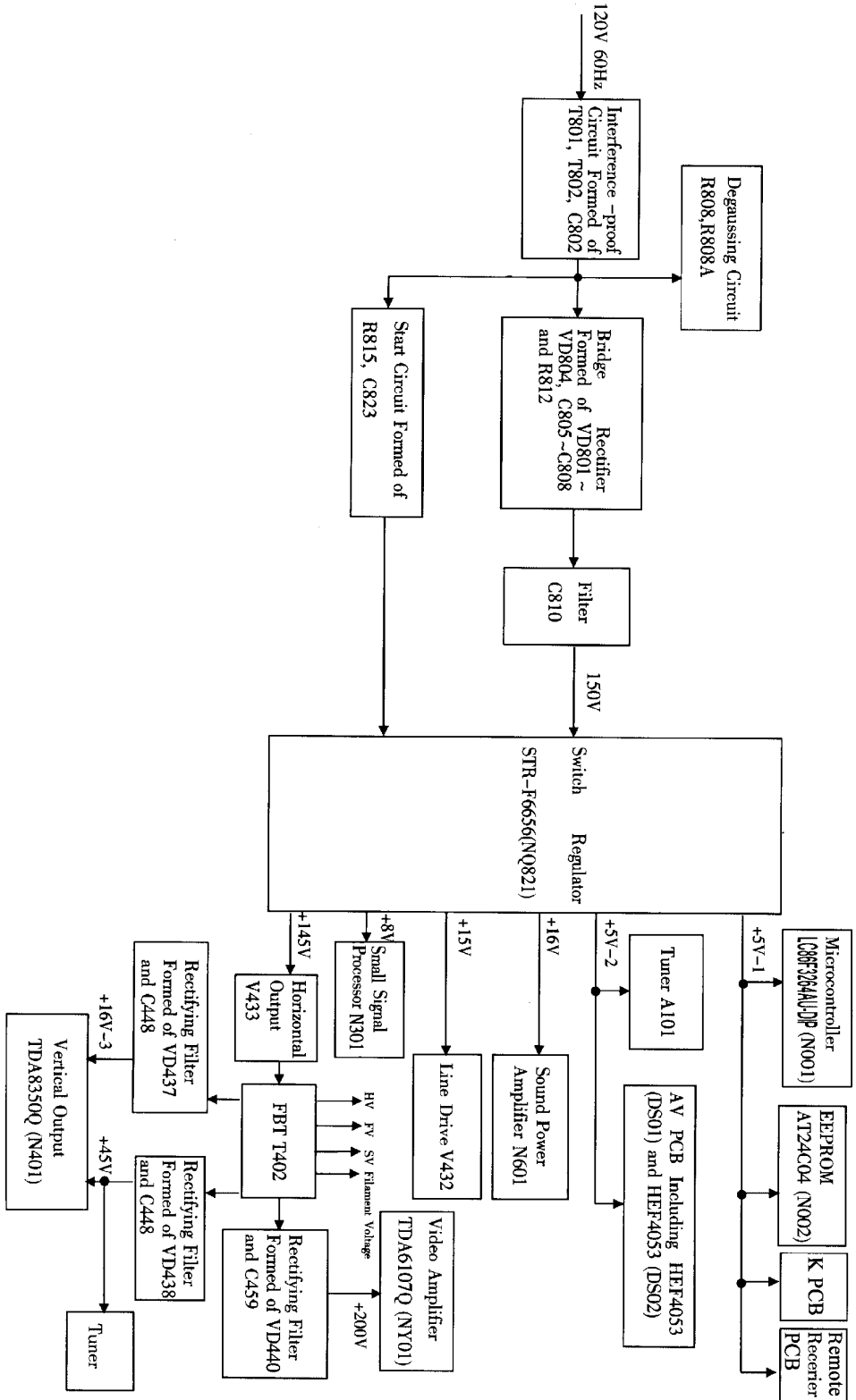


Fig. 2 Block Diagram for CH-10C5 Supply Voltage System

Black Diagram for Remote Control Structure

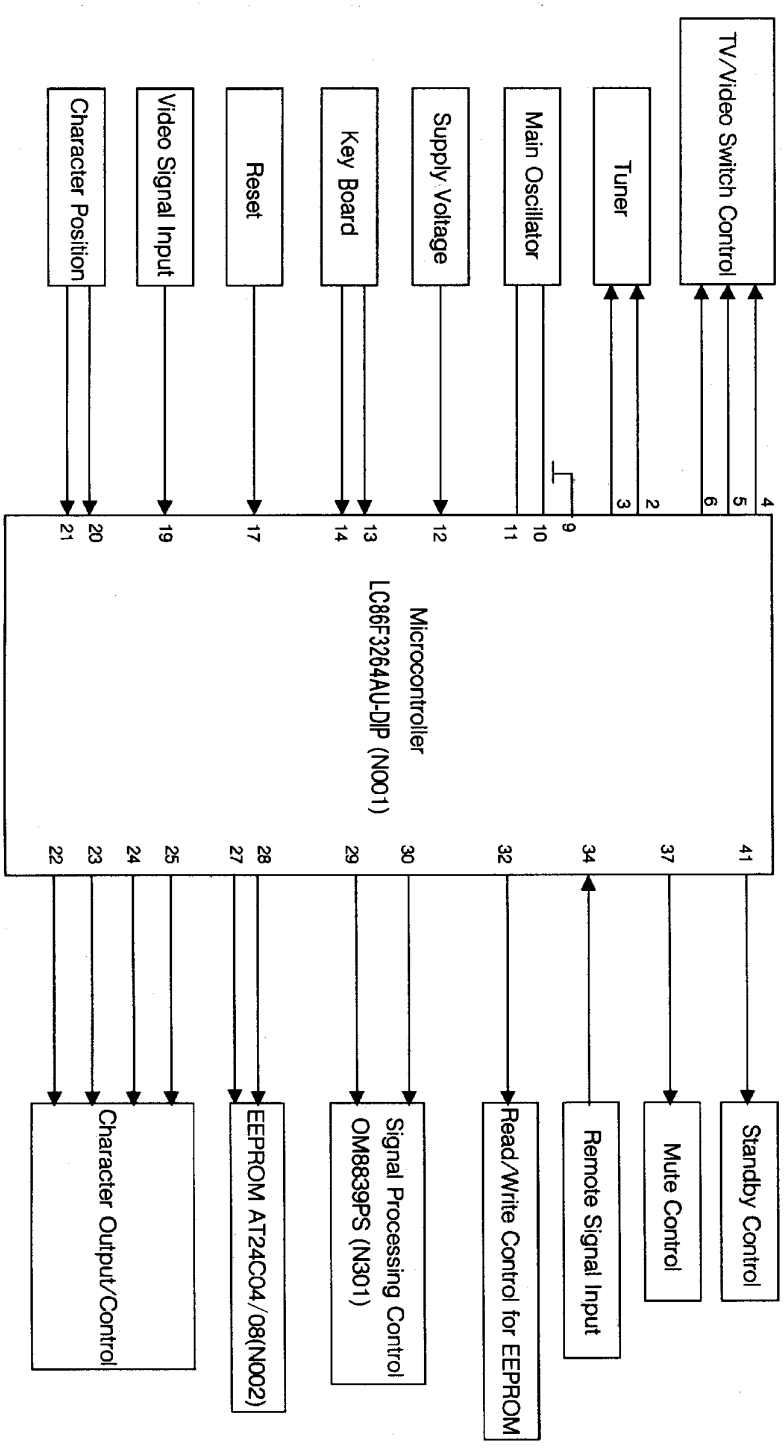


Fig. 3 Block Diagram for CH-10C5' Remote Control Structure

Block Diagram for Video Signal Processor

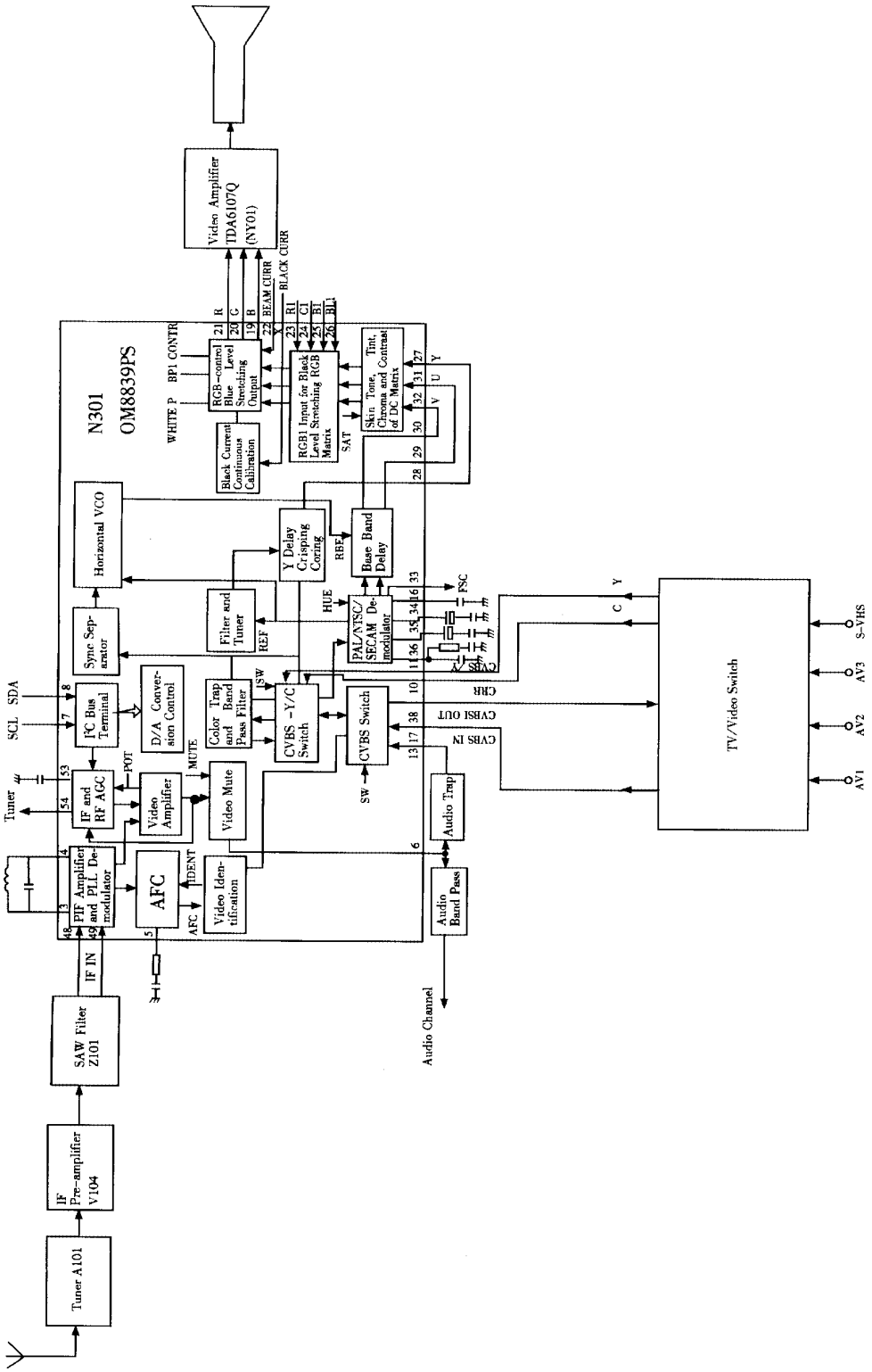


Fig. 4 Block Diagram for CH-10C5 Video Signal Processor

SERVICE DATA

Technical Data of Key ICs

LC86F3264AU-DIP (N001)

1. Terminal Assignment Layouts

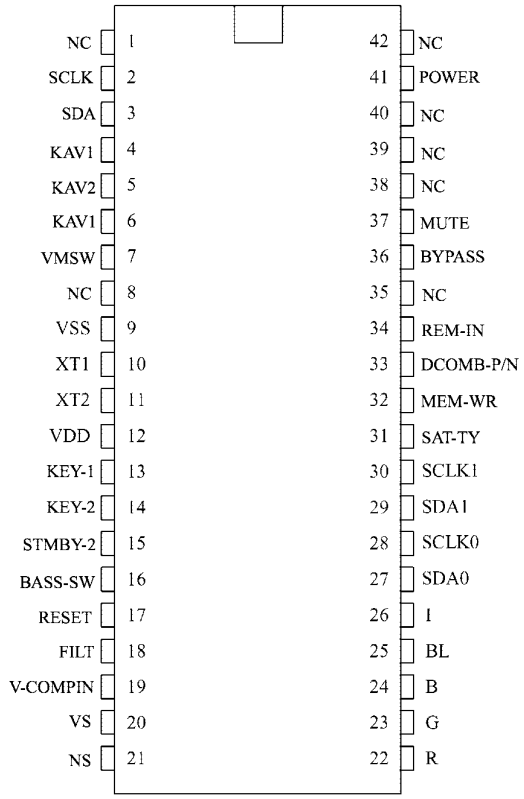


Fig. 5 LC86F3264AU-DIP DIP42S Terminal Assignment Layout

2. Terminal Function

Table 2 Terminal Function Table

<table>
<tr><th>Terminal</th><th>I/O</th><th>Function Description</th><th>Option</th><th>Format</th></tr>
<tr><td>VSS</td><td>-</td><td>Negative power supply</td><td></td><td></td></tr>
<tr><td>XT1</td><td>1</td><td>Input terminal for crystal oscillation</td><td></td><td></td></tr>
<tr><td>XT2</td><td>O</td><td>Output terminal for crystal oscillation</td><td></td><td></td></tr>
<tr><td>VDD</td><td>-</td><td>Positive power supply</td><td></td><td></td></tr>
<tr><td>RES</td><td>I</td><td>Reset terminal</td><td></td><td>A</td></tr>
<tr><td>FILT</td><td>O</td><td>Charge-pump output terminal</td><td></td><td>N</td></tr>
<tr><td>CVIN</td><td>I</td><td>Image signal input terminal
(available only in CH04T1002)</td><td></td><td>M</td></tr>
<tr><td>VS</td><td>I</td><td>Vertical synchronization signal input terminal</td><td></td><td rowspan="2">A</td></tr>
<tr><td>HS</td><td>I</td><td>Horizontal synchronization signal input terminal</td><td></td></tr>
<tr><td>R</td><td>O</td><td>Red (R) output terminal of RGB image</td><td></td><td rowspan="5">O</td></tr>
<tr><td>G</td><td>O</td><td>Green (R) output terminal of RGB image</td><td></td></tr>
<tr><td>B</td><td>O</td><td>Blue (B) output terminal of RGB imagee</td><td></td></tr>
<tr><td>I</td><td>O</td><td>Intensity (I) output terminal of RGB image</td><td></td></tr>
<tr><td>RL</td><td>O</td><td>Fast blanking control signal
Switch TV image and caption/OSD image signal</td><td></td></tr>
<tr><td>Part 0

P00-P07</td><td>I/O</td><td>8-bit input/output port
Input/output can be specified in nibble unit
Other functions:
Hold release input
Internal input</td><td>Pull-up resistor provided/not provided

Output format CMOS/Nch-OD</td><td>E</td></tr>
<tr><td>Port 1

P10-P17</td><td>I/O</td><td>8-bit input/output port
Each bit can be independently programmable
Other functions:
P10 SIO0 data output
P11 SIO0 data input/bus input/output
P12 SIO0 clock input/output
P13 PWM1 output
P14 PWM2 output
P15 PWM3 output
P17 Timer 1(PWM) output</td><td>Output format CMOS/Nch-OD</td><td>F</td></tr>
<tr><td>Port 6</td><td>I/O</td><td>4-bit input/output port
Each bit can be independently programmable
Other functions:
P60 IIC0 data input/output
P61 IIC0 clock output
P62 IIC1 data input/output
P63 IIC1 clock output</td><td></td><td></td></tr>
</table>

<table>
<tr><th>Terminal</th><th>I/O</th><th>Function Description</th><th>Option</th><th>Format</th></tr>
<tr><td>Port 7

P71-P73</td><td>I/O</td><td>4-bit input/output port
Each bit can be independently programmable
Other functions:
<table>
<tr><td>P70</td><td>INTO input/HOLD release input
/Nch-Tr. output for watchdog timer</td></tr>
<tr><td>P71</td><td>INT1 input/HOLD release input</td></tr>
<tr><td>P72</td><td>INT2 input/timer 0 event input</td></tr>
<tr><td>P73</td><td>INT3 input (noise rejection filter attached input)/timer 0 event input</td></tr>
</table>
Interrupt receiver format vector address
<table>
<tr><th></th><th>Rising</th><th>Falling</th><th>Rising / Falling</th><th>H level</th><th>L level</th><th>Vector</th></tr>
<tr><td>INTO</td><td>yes</td><td>yes</td><td>no</td><td>yes</td><td>yes</td><td>03H</td></tr>
<tr><td>INT1</td><td>yes</td><td>yes</td><td>no</td><td>yes</td><td>yes</td><td>0BH</td></tr>
<tr><td>INT2</td><td>yes</td><td>yes</td><td>yes</td><td>no</td><td>no</td><td>13H</td></tr>
<tr><td>INT3</td><td>yes</td><td>yes</td><td>yes</td><td>no</td><td>no</td><td>1BH</td></tr>
</table></td><td></td><td>P70
W
P71-P73
V</td></tr>
<tr><td>Port 8

P83
P84-P87</td><td>I
I/O</td><td>1-bit input port
(P83 is set only in CH04T1002)
4-bit input/output port(P84-P87)
Each bit can be independently programmable
Other function:
AD converter input port</td><td></td><td>P83
B

P84-P87
X</td></tr>
</table>

Port options can be specified independently for each bit.

The programmable pull-up resistors are provided depending on whether CMOS or Nch-OD (Nch open drain) is selected as the port 1 option.

3. Refer to Table 3 about Functions and Data of the IC's Each Pin.

EEPROM AT24C04 (N002)

1. Features

Data EEPROM internally organized as 512 bytes and 32 pages×16 bytes
Low power CMOS
Vcc=2.7 to 5.5V operation
Two wire serial interface bus I^2C-Bus compatible
Filtered inputs for noise suppression with Schmitt trigger
Clock frequency up to 400 kHz
High programming flexibility
-Internal programming voltage
-Self timed programming cycle including erase
-Byte-write and page-write programming between 1 and 16 bytes
-Typical programming time 6 ms(<10ms) for up to 16 bytes
High reliability
-Endurance 10^6 cycles[1)]
-Data retention 40 years[1)]
-ESD protection 4000 V on all pins
8 pin DIP/DSO packages
Available for extended temperature ranges
-Industrial -40 to +85
-Automotive -40 to +125

2. Pin Configuration

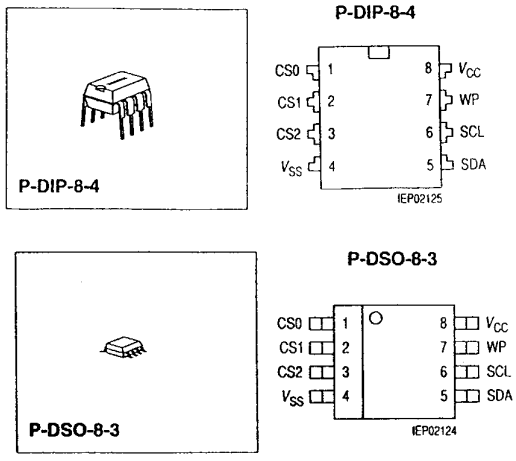


Fig. 6

3. Block Diagram

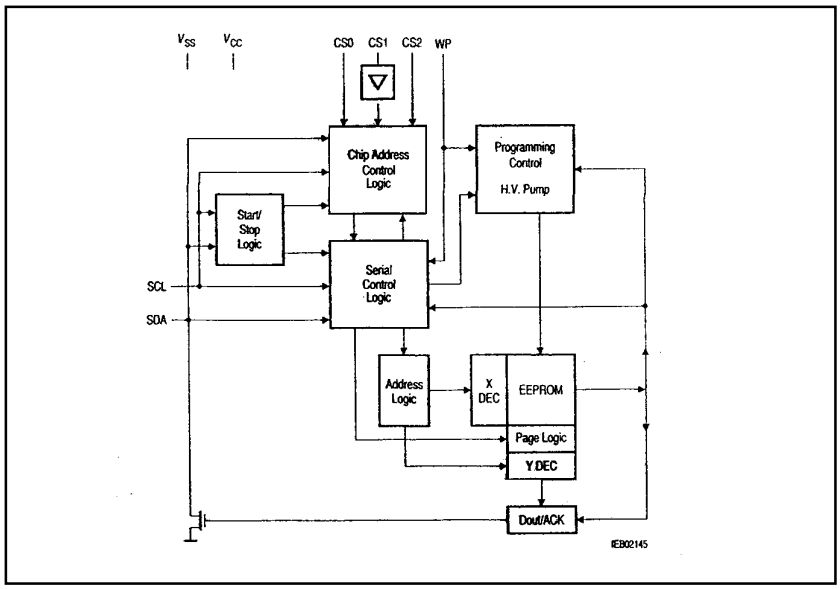


Fig. 7

4. Refer to Table 4 about Functions and Data of the IC's Each Pin

OM8839PS (N301)

I²C-bus Controlled PAL/NTSC/SECAM TV Processors

1. Features

The following features are available in all IC's:

·Multi-standard vision IF circuit with an alignment-free PLL demodulator without external components
·Alignment-free multi-standard FM sound demodulator (4.5 MHz to 6.5 MHz)
·Audio switch
·Flexible source selection with CVBS switch and Y(CVBS)/C input so that a comb filter can be applied
·Integrated chrominance trap circuit
·Integrated luminance delay line
·Asymmetrical peaking in the luminance channel with a (defeatable) noise coring function
·Black stretching of non-standard CVBS or luminance signals
·Integrated chroma band-pass filter with switchable centre frequency
·Dynamic skin tone control circuit
·Blue stretch circuit which offsets colours near white towards blue
·RGB control circuit with "Continuous Cathode Calibration" and white point adjustment
·Possibility to insert a"blue back" option when no video signal is available
·Horizontal synchronization with two control loops and alignment-free horizontal oscillator
·Vertical count-down circuit
·Vertical driver optimised for DC-coupled vertical output stages
·I²C-bus control of various functions

2. General Description

The various versions of the TDA 884X/5X series are I²C-bus controlled single chip TV processors which are intended to be applied in PAL, NTSC, PAL/NTSC and multi-standard television receivers. The N2 version is pin and application compatible with the N1 version, however, a new feature has been added which makes the N2 more attractive. The IF PLL demodulator has been replaced by an alignment-free IF PLL demodulator with internal VCO (no tuned circuit required). The setting of the various frequencies (33.4, 33.9, 38, 38.9, 45.75 and 58.75 MHz) can be made via the I²C-bus.

Because of this difference the N2 version is compatible with the N1, however, N1 devices cannot be used in an optimised N2 application.

Functionally the IC series is split up in 3 categories, viz:

·Versions intended to be used in economy TV receivers with all basic functions (envelope: S-DIP 56 and QFP 64)
·Versions with additional features like E-W geometry control, H-V zoom function and YUV interface which are intended for TV receivers with 110° picture tubes (envelope: S-DIP 56)
·Versions which have in addition a second RGB input with saturation control and a second CVBS output (envelope: QFP 64)

The various type numbers are given in the table below.

3. Survey of IC Types

Envelope	S-DIP 56		QFP 64	
TV receiver category	Economy	Mid/High end	Economy	Mid/High end
PAL only	TDA 8840		TDA 8840H	
PAL/NTS	TDA 8841	TDA 8843	TDA 8841H	
PAL/SECAM/NTSC	TDA 8842	TDA 8844	TDA 8842H	TDA 8854H
NTSC only	TDA 8846/46A	TDA 8847		TDA 8857H

4. Block Diagram

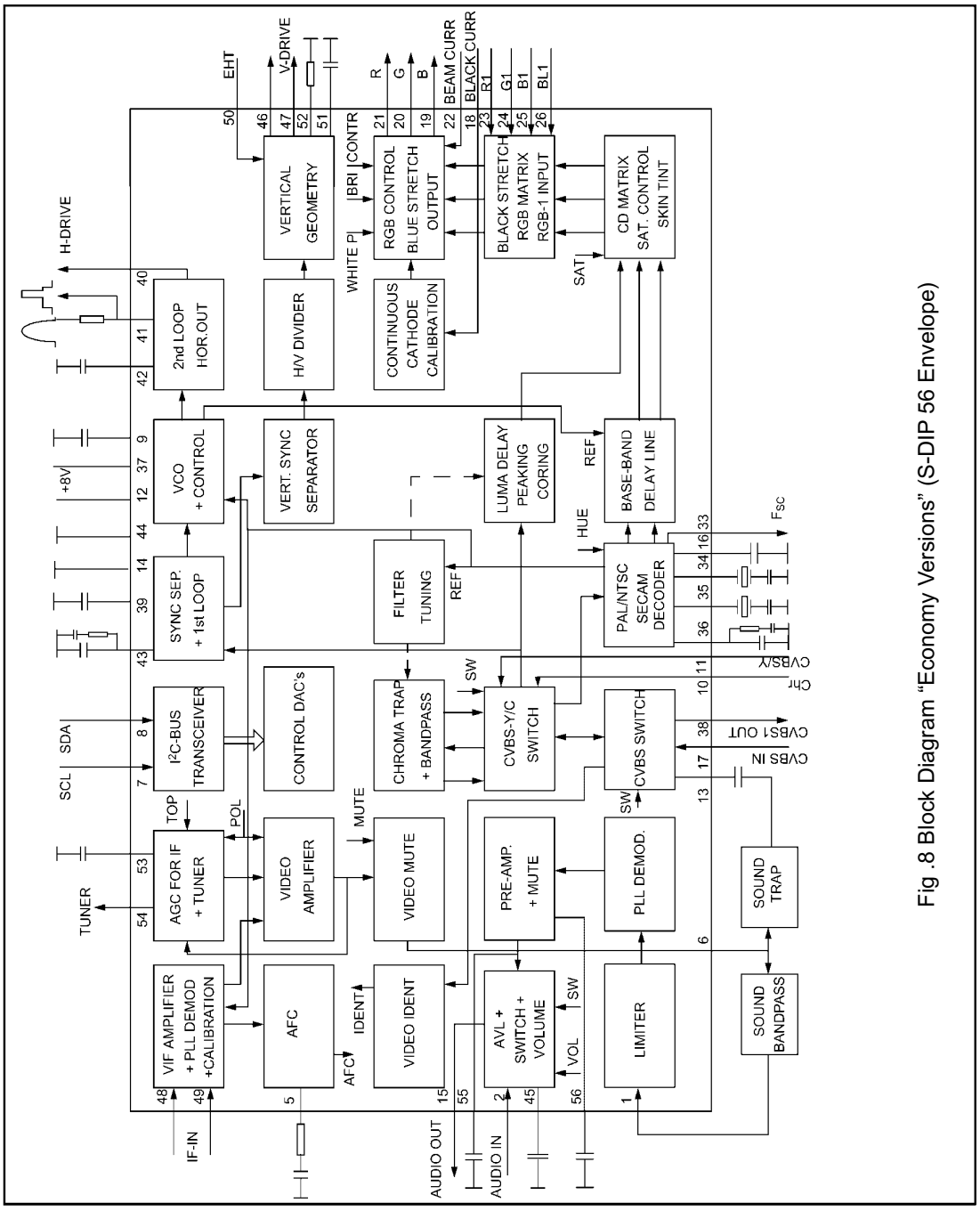


Fig .8 Block Diagram "Economy Versions" (S-DIP 56 Envelope)

5. Refer to Table 5 about Functions and Data of the IC's Each Pin.

TDA8350Q (N401)

DC-coupled Vertical Deflection and East-West Output Circuit

1. Features

Few external components

Highly efficient fully DC-coupled vertical output bridge circuit

Vertical flyback switch

Guard circuit

Protection against

- short-circuit of the output pins
- short-circuit of the output pins to Vp

High EMC immunity due to common mode inputs

Temperature (thermal) protection

East-West output stage with one single conversion resistor.

2. General Description

The TDA8350Q is a power circuit for use in 90° and 110° colour deflection systems for-field frequencies of 50 to 120 Hz. The circuit provides a DC driven vertical deflection output circuit, operating as a highly efficient class G system and an East-West driver for sinking the diode modulator current.

3. Block Diagram

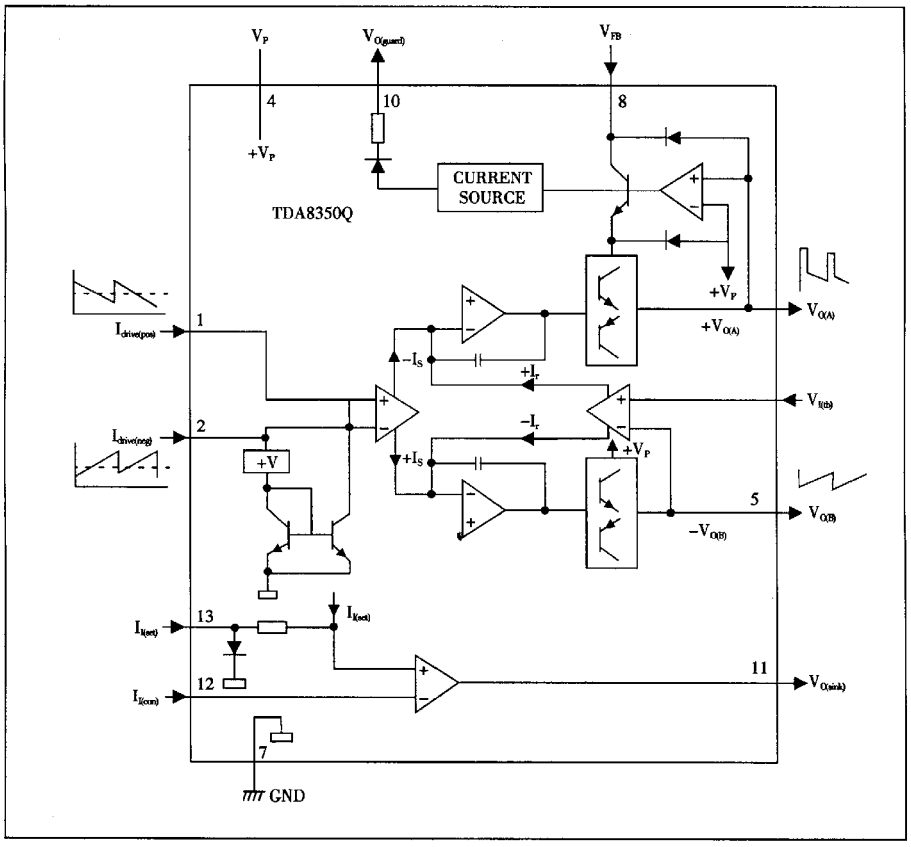


Fig. 9 Block Diagram

4. Refer to Table 6 about Functions and Data of the IC's Each Pin.

TDA7057AQ (N601)

2×8W Stereo BTL Audio Output Amplifier with DC Volume Control

1. Features

·DC volume control
·Few external components
·Mute mode
·Thermal protection
·Short-circuit proof
·No switch-on and switch-off clicks
·Good overall stability
·Low power consumption
·Low HF radiation
·ESD protected on all pins.

2. General Description

The TDA7057AQ is a stereo BTL output amplifier with DC volume control. The device is designed for use in TVs and monitiors, but is also suitable for battery-fed portable recorders and radios.

Missing Current Limiter (MCL)

A MCL protection circuit is built-in. The MCL circuit is activated when the difference in current between the output terminal of each amplifier exceeds 100 mA (typical 300 mA). This level of 100 mA allows for single-ended headphone applications

3. Block Diagram

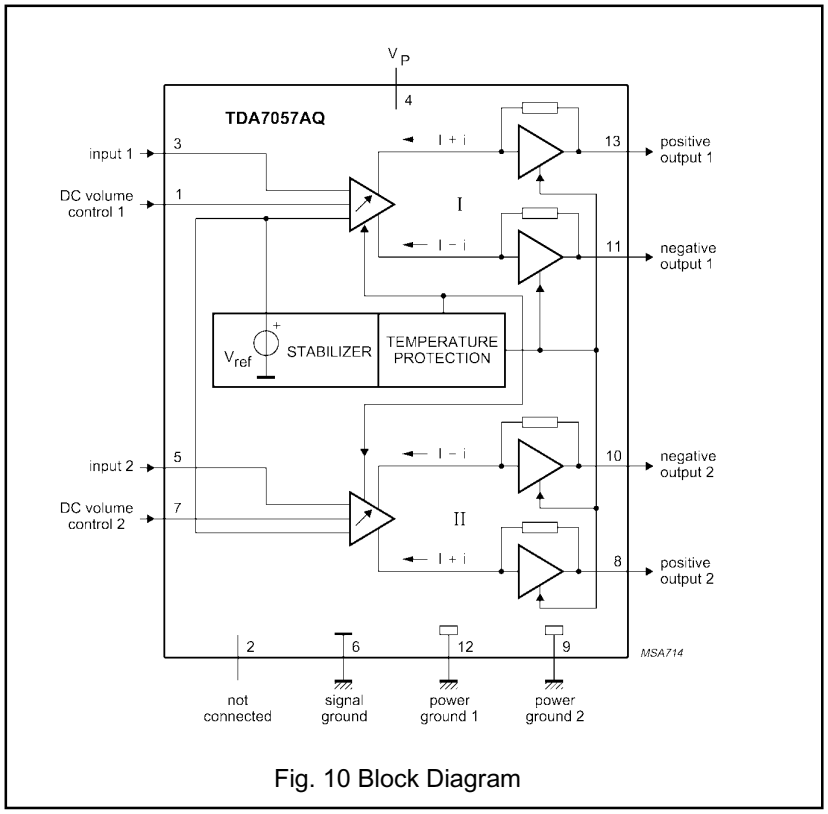


Fig. 10 Block Diagram

4. Refer to Table 7 about Functions and Data of the IC's Each Pin.

TDA6107Q (NY01)
Triple Video Output Amplifier

1. Features

·Typical bandwidth of 5.5 MHz for an output signal of 60 V (p-p)
·High slew rate of 900 V/S
·No external components required
·Very simple application
·Single supply voltage of 200 V
·Internal reference voltage of 2.5 V
·Fixed gain of 50
·Black-Current Stabilization (BCS) circuit
·Thermal protection.

2. General Description

The TDA6107Q includes three video output amplifiers in one plastic DIL-bent-SIL 9-pin medium power (DBS9MPF) package (SOT 111-1), using high-voltage DMOS technology, and is intended to drive the three cathodes of a colour CRT directly. To obtain maximum performance, the amplifier should be used with black-current control.

3. Ordering Information

Type Number	Package		
	Name	Description	Version
TDA6107Q	DBS9MPF	Plastic DIL-bent-SIL medium power package with fin; 9 leads	SOT111-1

4. Block Diagram

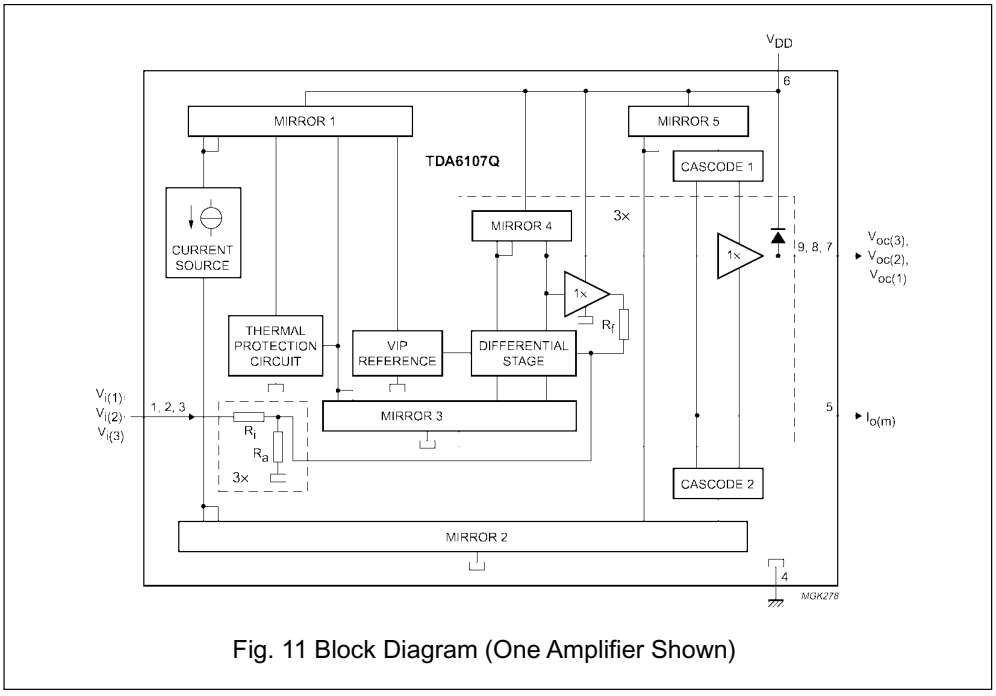


Fig. 11 Block Diagram (One Amplifier Shown)

5. Refer to Table 8 about Functions and Data of the IC's Each Pin.

STR-G5653/6454R (NQ821)
Power Module

The Series STR-G5653/F6654 is specifically designed to satisfy the requirements for increased integration and reliability in off-line quasi-resonant flyback converters. The series incorporates a high-precise error amplifying control and drive circuit with discrete avalanche-rated power MOSFET, featuring fewer external components, small-size and standard power supply.

Covering the power range from below 25 watts up to 300 watts for 100/115/230 VAC inputs, and up to 150 watts for 85 to 265 VAC universal input, these devices can be used in a range of applications, from battery chargers and set top boxes, to televisions, monitors, and industrial power supply units.

Cycle-by-cycle current limiting, under-voltage lockout with hysteresis, over-voltage protection, and thermal shutdown protects the power supply during the normal overload and fault conditions. Low-current startup and a low-power standby mode selected from the secondary circuit completes a comprehensive suite of features. The series is provided in a five-pin overmolded SIP style package, affording dielectric isolation without compromising thermal characteristics.

1. Features

Flyback Operation with Quasi-Resonant Soft Switching for Low Power Dissipation and EMI
Rugged Avalanche-Rated MOSFET
Soft drive circuit MOSFET
Adjustable MOSFET switching speed
Choice of MOSFET Voltage and rDS(on)
Full Over-Current Protection (no blanking)
Under-Voltage Lockout with Hysteresis
Over-Voltage Protection
Direct Voltage Feedback
Low Start-up Current (100 Amax)
Low-Frequency, Low-Power Standby Operation
Overmolded 5-Pin Package

2. Circuit Block Diagram

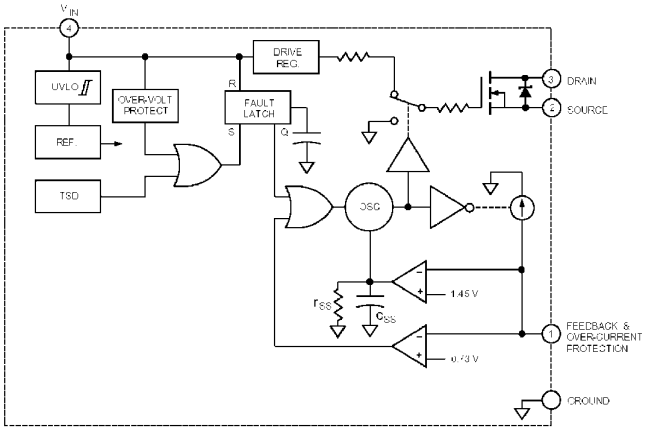
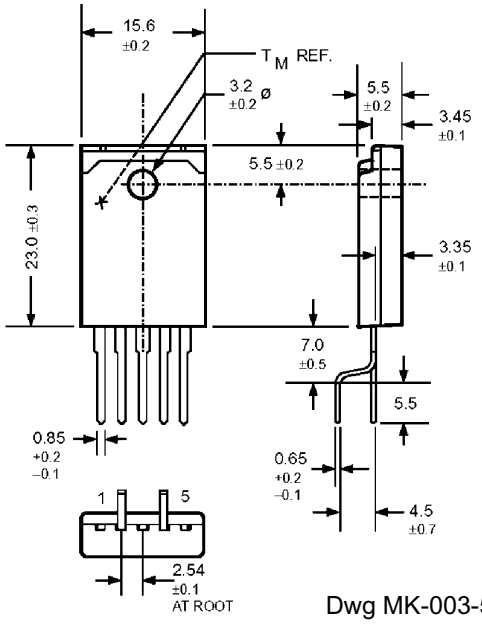


Fig.12

3. Pin Configuration and Functions



Dwg MK-003-50mm

Fig.13

3.1) Pin function for STR-G5653

Pin No.	Symbol	Function Description
1	D	MOSFET drain
2	S	MOSFET source
3	GND	Ground
4	V_{IN}	Supply voltage input for control circuit
5	OCP/FB	Over-current protection detection signal/voltage-limiting signal input

3.2) Pin function for STR-F6654

Pin No.	Symbol	Function Description
1	OCP/FB	Over-current protection detection signal/voltage-limiting signal input
2	S	MOSFET source
3	D	MOSFET drain
4	V_{IN}	Supply voltage input for control circuit
5	GND	Ground

4. Difference between STR-G5653 and STR-F6654

a.Different size: STR- F6654 is larger

b.Different pin functions

c.Different electric characteristics: Larger power output, switching current, avalanche-rated and internal allowable power consumption for STR-F6654

TDA9859 (N606)

Universal Hi-Fi Audio Processor for TV

1. Features

Multi-source selector switches six AF inputs (three stereo sources or six mono sources).

Each of the input signals can be switched to each of the outputs (crossbar switch).

Outputs for loudspeaker channel and peri-TV connector (SCART).

Switchable spatial stereo and pseudo stereo effects

Audio surround decoder can be added externally

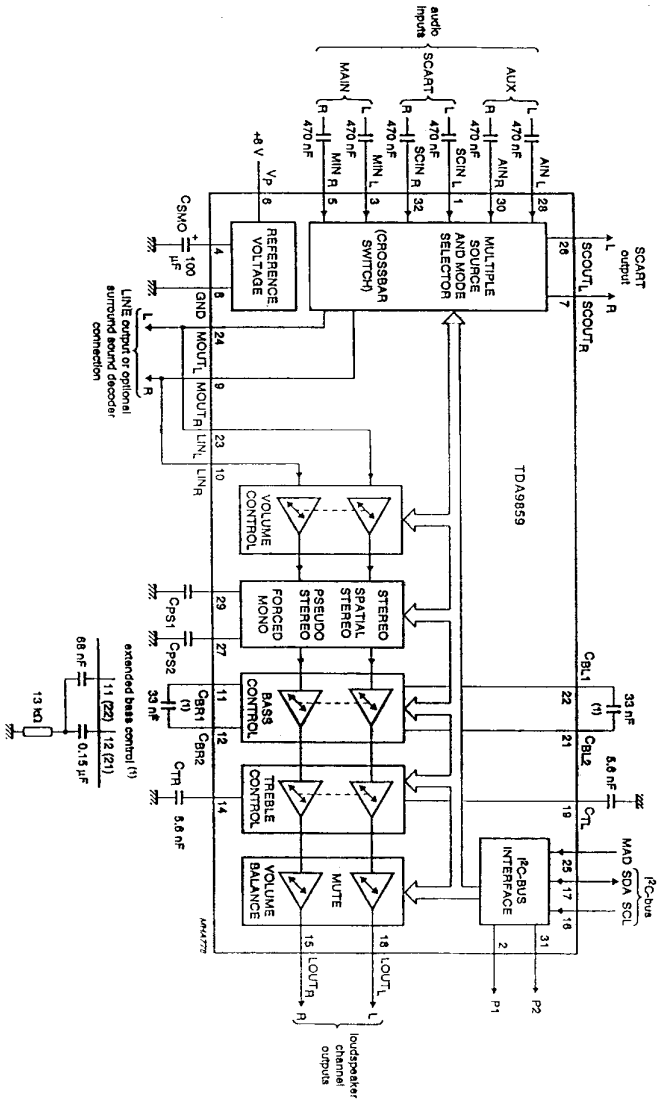
Two general purpose logic output ports

I^2C-bus control of all functions.

2. General Description

The TDA9859 provides control facilities for the main and the SCART channel of a TV set. Due to extended switching possibilities signals from three stereo sources can be handled.

3. Block Diagram



(1) For extended bass control, the capacitor between CBR/L1 and CBR/L2 should be replaced by the extended bass control network.

Fig. 14 Block Diagram and Application Circuit.

4. Refer to Table 9 about Functions and Data of the IC's Each Pin.

HEF4053 (DS01/DS02)

Triple 2-channel Analog Multiplexer/Demultiplexer

1. Description

The HEF4053 is a triple 2-channel analog multiplexer/demultiplexer with a common enable input ($\overline{E}$). Each multiplexer/demultiplexer has two independent inputs/outputs (Y_0 and Y_1) a common input/output (Z) and select inputs (Sn). Each also contains two-bidirectional analog switches each with one side connected to an independent input/output (Y_0 and Y_1) and the other side connected to a common input/output(Z).

With ($\overline{E}$) LOW one of the two switches is selected (low impedance ON-state) by Sn. With $\overline{E}$ HIGH all switches are in the high impedance OFF-state independent of S_A to S_C.

V_{DD} and V_{SS} are the supply voltage connections for the digital control inputs (S_A to S_C and E).

The V_{DD} to V_{SS} range is 3 to 15V.The analog inputs/outputs (Y_0 Y_1 and Z) can swing between V_{DD} as a positive limit and V_{EE} as a negative limit. V_{DD}-V_{EE} may not exceed 15 V.

For operation as a digital multiplexer/demultiplexer V_{EE} is connected to V_{SS} (typically ground).

2. Block Diagrams

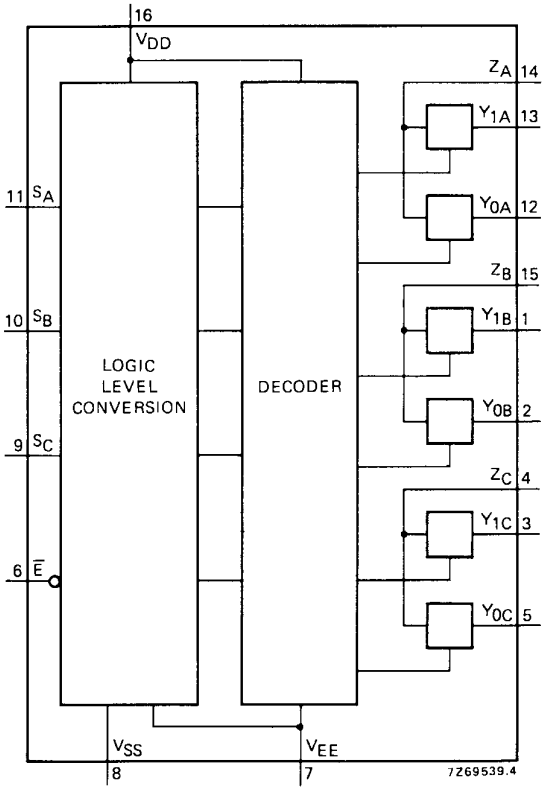


Fig. 15 Functional Diagram

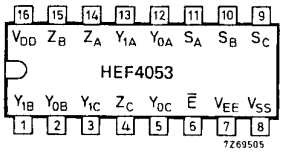


Fig. 16 Pinning Diagram

HEF4053P(N): 16-lead DIL ; plastic
(SOT38-1)
HEF4053D(F): 16-lead DIL; ceramic
(cerdip)
(SOT74)
HEF4053T(D): 16-lead S0; plastic
(SOT109-1)
( ): Package Designator North America

Pinning

Y_{0A} to Y_{0C}	Independent inputs/outputs
Y_{1A} to Y_{1C}	Independent inputs/outputs
S_A to S_c	Select inputs
E	Enable input (active LOW)
Z_A to Z_C	Common inputs/outputs

3. Function Table

Inputs		Channel
E	**Sn**	**On**
L	L	Y_{on}-Z_n
L	H	Y_{In}-Z_n
H	X	none

Notes

H=HIGH state (the more positive voltage)
L=LOW state (the less positive voltage)
X=STATE is immaterial

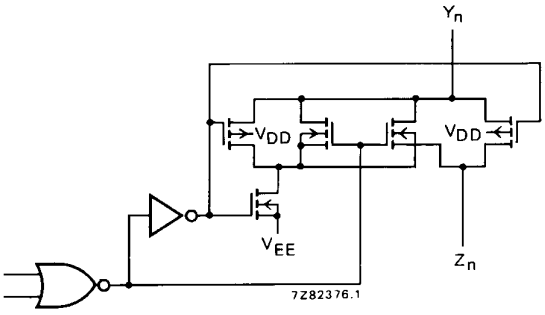


Fig. 17 Schematic Diagram (One Switch)

Ratings

Limiting values in accordance with the Absolute Maximum System(IEC 134)

Supply voltage (with reference to V_{DD}) V_{EE} -18 to + 0,5 V

Note

To avoid drawing V_{DD} current out of terminal Z, when switch current flows into terminals Y, the voltage drop across the bidirecctional switch must not exceed 0,4 V. If the switch current flows into terminal Z, no V_{DD} current will flow out of terminals Y, in this case there is no limit for the voltage drop across the switch, but the voltages at Y and Z may not exceed V_{DD} or V_{EE}

4. Refer to Table 10 about Functions and Data of the IC's Each Pin.

Service Data of Key ICs

Table 3 Functions and Service Data of LC86F3264AU-DIP (N001)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Not connected	0	9.62	5.35
2	Clock line	4.89	9.56	5.08
3	Data line	4.87	9.56	5.06
4	AV1 control	5	6.84	5.22
5	AV2 control	0	6.89	5.16
6	AV3 control	0	7.28	5.29
7	Not connected	0	9.61	5.4
8	Not connected	0.92	9.6	5.4
9	Ground	0	0	0
10	Input terminal for clock oscillating signal	1.88	9.55	6.12
11	Output terminal for clock oscillating signal	2.63	9.05	6.08
12	Power supply	5	3.64	3.33
13	Button-control voltage input terminal	5	8.91	5.21
14	Button-control voltage input terminal	5	8.93	5.21
15	Not connected	5	9.45	5.45
16	Not connected	4.9	9.53	5.45
17	Reset	4.96	4.64	4.48
18	Filter	2.76	9.52	5.31
19	Video signal input terminal	3	9.51	5.92
20	Input terminal for vertical flyback pulse	4.74	8.73	5.03
21	Input terminal for horizontal flyback pulse	4.27	8.81	5.01
22	R character output terminal	0	2.08	2.08
23	G character output terminal	0	2.1	2.1
24	B character output terminal	0	2.08	2.08
25	Output terminal for fast blanking signal	0	1.97	1.97
26	Character level clamping	0	9.54	5.73
27	Clock line 0	5	7.12	4.91
28	Data line 0	5	7.12	5.18
29	Clock line 1	4.52	7.05	5.12
30	Data line 11	4.41	7.03	5.09
31	Overload detecting input terminal	5	6.95	5.13
32	Input terminal for selectable production modes	5	9.62	5.29
33	Not connected	0	9.56	5.46
34	Remote control input	4.64	9.22	5.33
35	Not connected	0	9.58	5.4
36	Not connected	0	9.58	5.42
37	Mute	0	9.58	4.3
38	Not connected	0	9.58	5.36
39	Not connected	0	9.59	5.28
40	Not connected	0	9.59	5.36
41	Standby control	0	7.43	4.9
42	Not connected	0	9.6	5.36

Table 4 Functions and Service Data of AT24C04 (N002)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Address input	0	0	0
2	Address input	0	0	0
3	Address input	0	0	0
4	Common ground	0	0	0
5	Clock line	5	7.05	4.82
6	Data line	5	7.06	5.24
7	Write protect	4.99	9.58	5.49
8	Power supply	5	3.64	3.33

Table 5 Functions and Service Data of OM8839PS (N301)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	SIF signal input	0	2.21	2.21
2	External audio signal input	3.65	9.02	6.04
3	Reference frequency resonant coil terminal	0		
4	Reference frequency resonant coil terminal	0		
5	PLL filter	2.51	8.92	5.82
6	Video detection output	3.06	2.2	2.2
7	Clock line	4.4	7.15	5.15
8	Two-way transmission data line	4.52	7.15	5.15
9	Gap decoupling	6.7	7.52	5.68
10	SVHS chroma signal input	1.35	9	6
11	SVHS luminance signal input	3.4	9.04	5.91
12	Supply voltage	8.24	2.78	1.96
13	Composite video signal input terminal	4.32	9.15	5.94
14	Ground	0	0	0
15	Audio signal output	3	9.24	5.98
16	Decoupling capacitor connection	0		
17	Video input	3.4	9.12	5.94
18	Black current control input	5.81	9.22	5.88
19	Blue(B) signal output	3.04	6.19	5.2
20	Green(G) signal output	3.1	6.19	5.23
21	Red(R) signal output	3.2	6.2	5.26
22	Beam current control	2.1	8.22	6.04
23	Red(R) signal output	3.6	9.01	6.12
24	Green(G) signal output	3.61	9.01	6.12
25	Blue(B) signal output	3.6	9.01	6.12
26	Selectable primary color signal input control	0.1	1	1
27	Luminance signal input	3.26	9.25	5.87
28	Luminance signal input	3.26	9.25	5.87
29	B-Y color difference signal output	2.38	8.5	5.91
30	R-Y color difference signal output	2.37	8.5	5.91
31	B-Y color difference signal output	2.38	8.5	5.91

32	R-Y color difference signal output	2.37	8.5	5.91
33	Sub-carrier output for SECAM demodulation	0.35	6.78	5.96
34	3.58MHz crystal oscillator	2.54	8.02	6.04
35	4.43MHz crystal oscillator	2.53	8.02	6.04
36	APC low pass filter	4.99	9.37	6
37	Horizontal starting supply voltage	8.22	2.64	2.56
38	Composite video output	3.68	7.52	6.11
39	Black level stretch	4.95	9.26	4.93
40	Line drive pulse output	3.55	3.5	3.49
41	Horizontal flyback pulse input/sandcastle pulse output	0.76	8.82	5.92
42	Line discriminator	3.66	8.81	6.04
43	Line discriminator	3.92	9.31	6.04
44	Ground	0	0	0
45	Vertical frequency parabola output	0.73	9.05	5.97
46	Field drive signal output	2.32	9.3	5.97
47	Field drive signal output	2.35	9.3	5.97
48	IF signal input	4.62	8.52	6.2
49	IF signal input	4.62	8.52	6.2
50	High voltage detection input	2.05	8.04	6.14
51	Vertical sawtooth generation	3.8	8.65	6.09
52	Vertical reference bias setting	3.9	8.89	6.05
53	AGC filter for IF amplifier	4.49	9.25	6
54	AGC output for IF amplifier	0.67	10.05	5.82
55	Audio deemphasis	2.93	8.93	6.12
56	Audio decoupling	4.02	9.37	6.08

Table 6 Functions and Service Data of TDA8350 (N401)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Vertical drive input (positive)	2.32	9.4	5.84
2	Vertical drive input (negative)	2.3	9.4	5.87
3	Feedback input	8.15	5.81	4.72
4	Supply voltage	16.27	7.99	7.62
5	Output 1	8.14	5.88	4.72
6	Not connected	0		
7	Ground	0	0	0
8	Pump supply voltage input	46.94		4.29
9	Output 1	8.22	5.92	4.71
10	Guard output	0.28	8.51	5.899
11	Pincushion output	16.99	9.45	4.16
12	Pincushion input (negative)	0.25	9.12	5.93
13	Pincushion input (positive)	0	0	0

Table 7 Functions and Service Data of TDA7057AQ (N601)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Volume control input	1.03	6.88	6.15
2	Not connected	0		
3	Audio R signal input	2.45	12.68	6.5
4	Supply voltage	16.18	0.46	0.46
5	Audio L signal input	2.45	12.6	6.5
6	Ground	0	0	0
7	Volume control input	1.03	6.88	6.15
8	Left channel in-phase signal output	7.64	6.48	5.6
9	Ground	0	0	0
10	Left channel inverting signal output	7.71	6.47	5.6
11	Right channel inverting signal output	7.76	6.47	5.6
12	Ground	0	0	0
13	Right channel in-phase signal output	7.79	6.48	5.6

Table 8 Functions and Service Data of TDA6107Q (NY01)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	G inverting input	2.94	5.72	4.96
2	R inverting input	3	5.72	4.96
3	B inverting input	2.91	5.72	4.96
4	Ground	0	0	0
5	Black level current input	6.5	19.28	5.68
6	Supply voltage	198.65		4.53
7	B output	103		5.48
8	R output	98.6		5.48
9	G output	100.6		5.48

Table 9 Functions and Service Data of TDA9859 (N606)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Audio input	4.14	7.62	5.85
2	Output 1	0	7.86	6.26
3	Audio input	4.14	7.61	5.84
4	Reference voltage for filtering capacitor	8.18	7.46	5.94
5	Audio output	4.14	7.62	5.83
6	Supply voltage	8.26	1.62	1.62
7	Audio output	4.15	7.41	5.95
8	Ground	0	0	0
9	Audio output	4.15	7.36	5.79
10	Audio input 8	4.15	7.36	5.79
11	Channel 1 audio compensation	4.15	7.38	6.12
12	Channel 2 audio compensation	4.15	7.61	6.03
13	Audio output 8	0		
14	Treble compensation	4.15	7.48	6.24
15	Audio output	4.13	6.78	5.66
16	Clock line	4.33	7.02	5.25
17	Serial data line	4.53	6.98	5.21
18	Audio output	4.13	6.78	5.65
19	Treble compensation	4.14	7.48	6.24
20	Audio output	0		
21	Bass2 compensation	4.15	7.59	6.04
22	Bass1 compensation	4.15	7.37	6.12
23	Audio input	4.15	7.34	5.77
24	Audio output	4.15	7.34	5.77
25	Mode address selection	0	0	0
26	Audio output	4.15	7.38	5.96
27	Audio compensation 1	4.14	7.64	6.22
28	Audio input	4.14	7.59	5.83
29	Audio compensation 1	4.14	7.61	6.24
30	Audio input	4.14	7.57	5.83
31	Output 2	0	7.84	6.24
32	Audio input	4.14	7.57	5.83

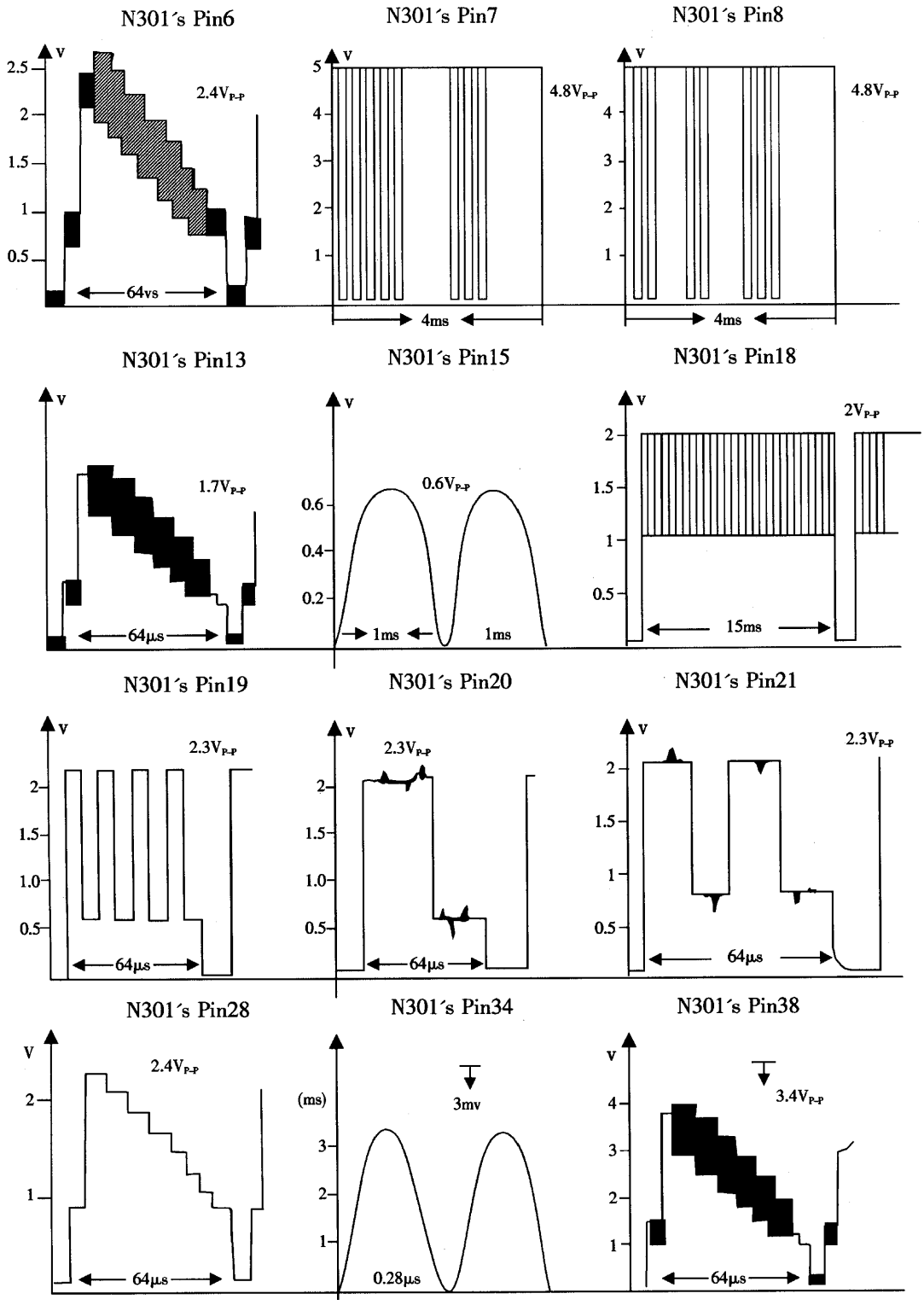
Table 10 Functions and Service Data of HEF4053 (DS01/DS02)'s Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	Signal input	0	9.81	6.15
2	Signal input	0	0	0
3	Signal input	0	9.81	6.15
4	Signal output	0	6.66	6.21
5	Signal input	0	0	0
6	Ground	0	0	0
7	Ground	0	0	0
8	Ground	0	0	0
9	Control signal input	0.12	7.97	5.7
10	Control signal input	0.12	7.99	5.7
11	Control signal input	4.98	7.8	5.6
12	Signal input	0	0	0
13	Signal output	0	9.81	6.15
14	Signal input	0	6.9	6.4
15	Signal output	0	6.95	6.4
16	Supply voltage	5.09	6.98	4.44

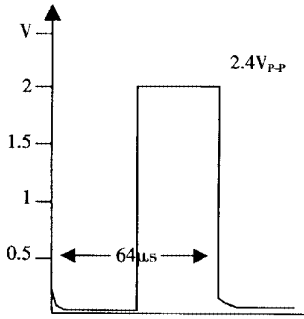
Table 11 Functions and Service Data of TDQ-6F2M's Pins

Pin No.	Function Description	Digital Multimeter		
		Reference Voltage (V)	Positive Resistance (K)	Negative Resistance (K)
1	AGC	0.98	9.56	6.04
2	NC	26.73		6.85
3	NC	0.61	9.79	7.39
4	SCL	4.89	9.58	5.13
5	SDA	4.88	9.58	5.12
6	VDD	5	2.2	2.2
7	NC	4.9	2.2	2.2
8	NC	0	0	0
9	BT	30.21		13.07
10	NC	0	0	0
11	IF	0		

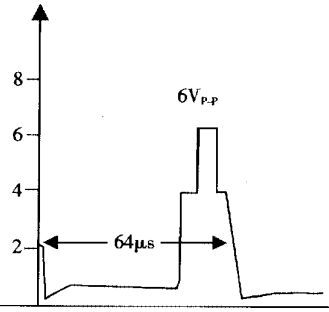
Waveforms of Key Points



N301´s Pin40



N301´s Pin41



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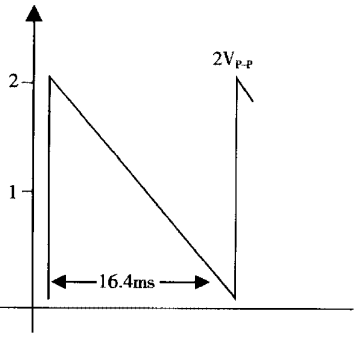
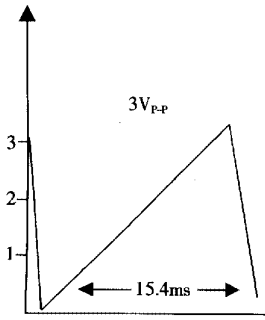


N301´s Pin51



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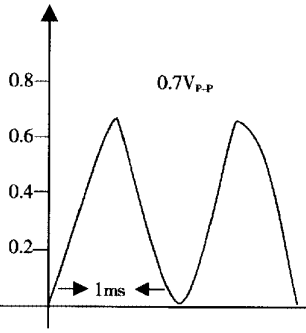
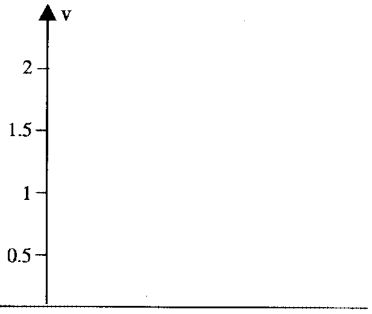
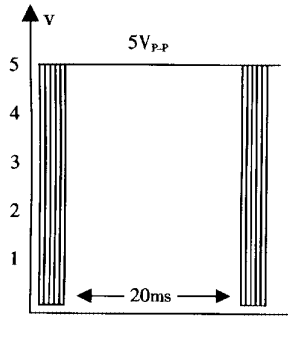


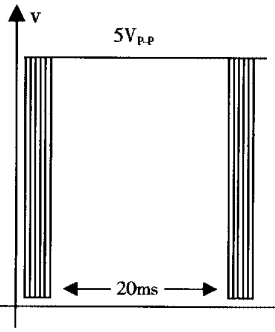


N001

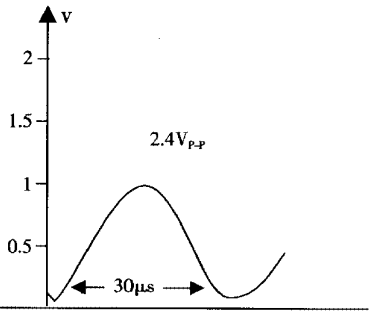
N001´s Pin2



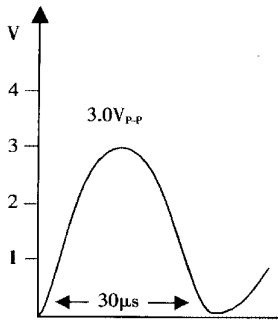
N001´s Pin3



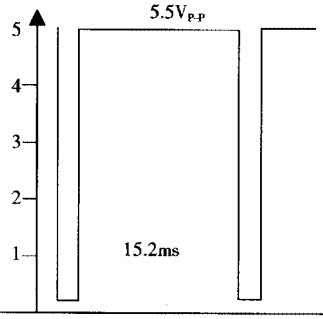
N001´s Pin10



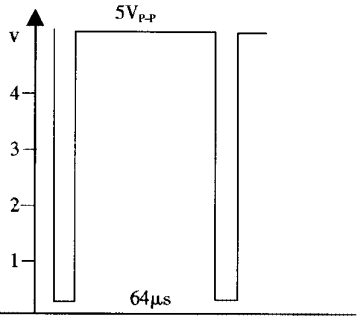
N001´s Pin11



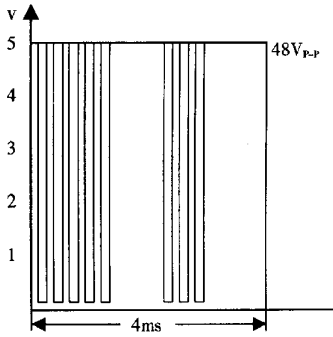
N001´s Pin20



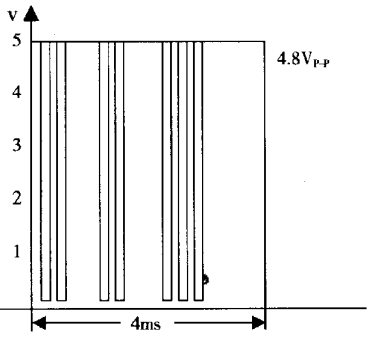
N001´s Pin21



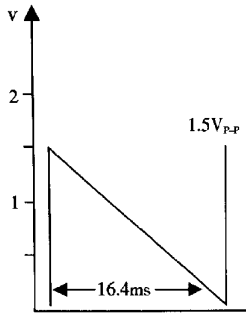
N001´s Pin29



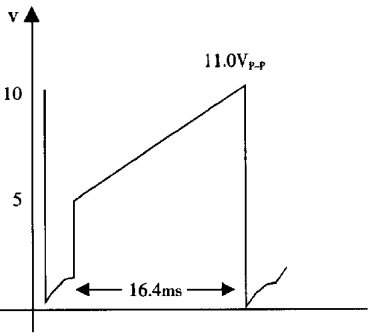
N001´s Pin30



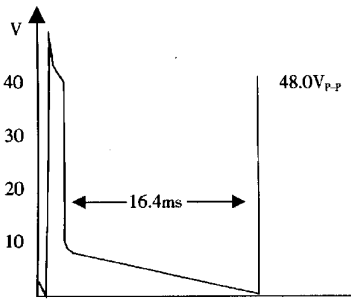
N401´s Pin1



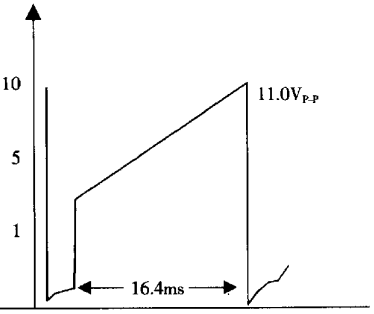
N401´s Pin3



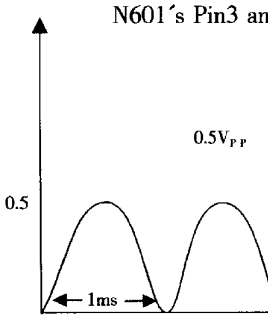
N401´s Pin9



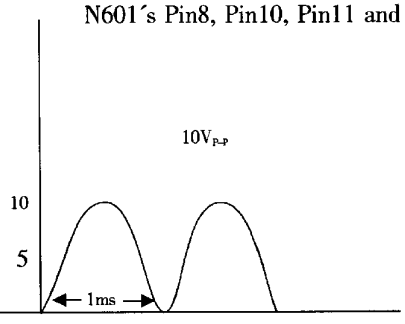
N401´s Pin5



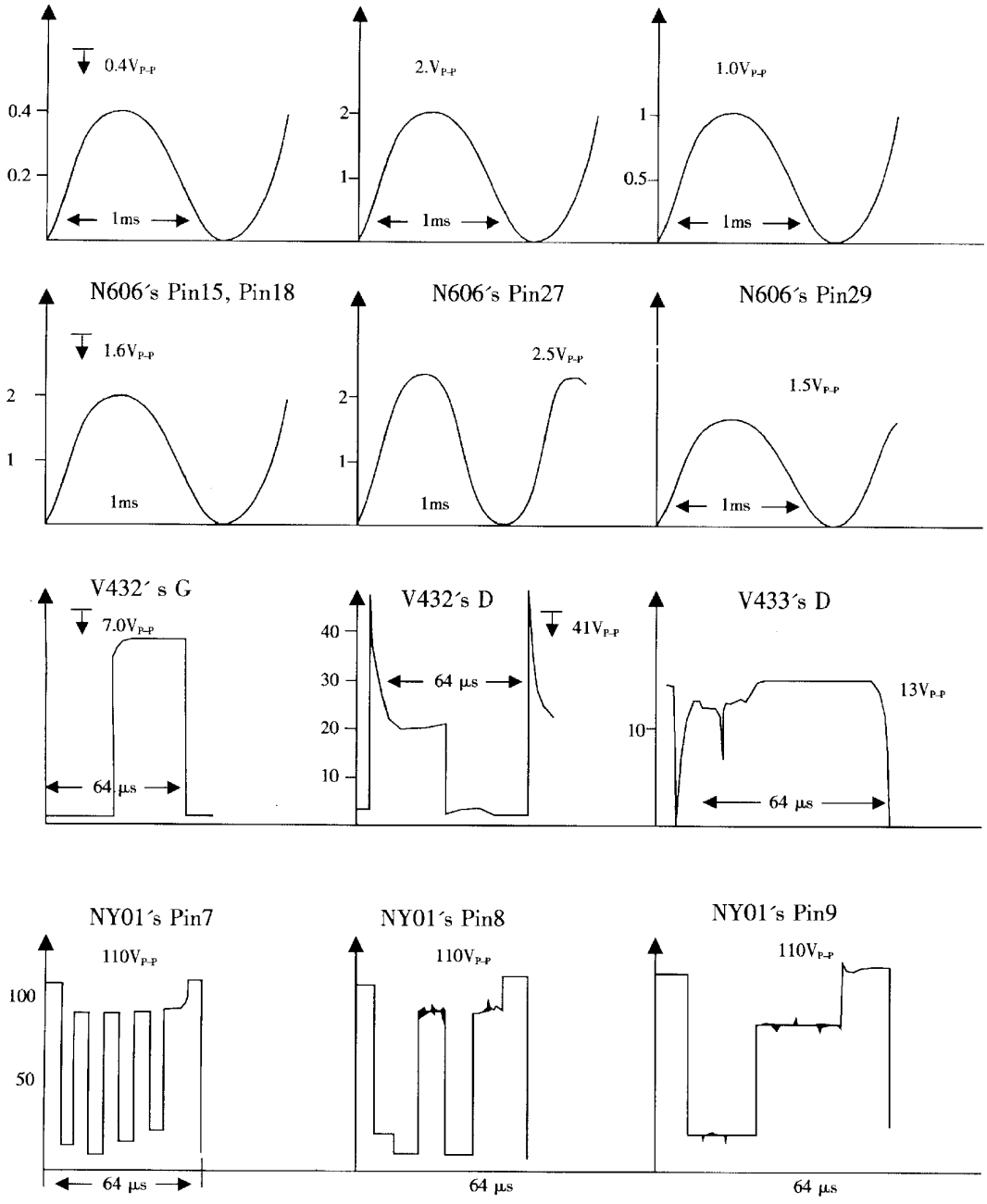
N601´s Pin3 and Pin5



N601´s Pin8, Pin10, Pin11 and Pin13



Measure with a GOS-622G oscilloscope.


0.4V P-P
0.4
0.2
1ms
2.V P-P
2
1
1ms
1.0V P-P
1
0.5
1ms
N606´s Pin15, Pin18
1.6V P-P
2
1
1ms
N606´s Pin27
2.5V P-P
2
1
1ms
N606´s Pin29
1.5V P-P
1ms
V432´ s G
7.0V P-P
64 µs
V432´s D
41V P-P
40
30
20
10
64 µs
V433´s D
13V P-P
10
64 µs
NY01´s Pin7
110V P-P
100
50
64 µs
NY01´s Pin8
110V P-P
64 µs
NY01´s Pin9
110V P-P
64 µs

ADJUSTMENTS

Set-up Adjustments

The following adjustments should be made when a complete realignment is required or a new CRT is installed. Perform the adjustments in order as follows.

1. Colour purity
2. Convergence
3. White Balance

Note:

The purity/convergence magnet assembly and rubber wedges need mechanical positioning. Refer to Fig. 18.

1. Colour Purity Adjustment

Note:

Before attempting any purity adjustment, the TV should be operated for at least 15 minutes.

1) Demagnetize the CRT and cabinet using a degaussing coil.
2) Set the brightness and contrast to maximum.
3) Receive the green raster test pattern.
4) Loosen the clamp screw holding the deflection yoke and slide it backward or forward to display vertical green belt (zone) on the screen.
5) Remove the rubber wedge.
6) Rotate and spread the tabs of the purity magnet around the neck of the CRT until the green belt is on the center of the screen.
7) Slowly move the deflection yoke forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
8) Check purity of the red and blue raster.

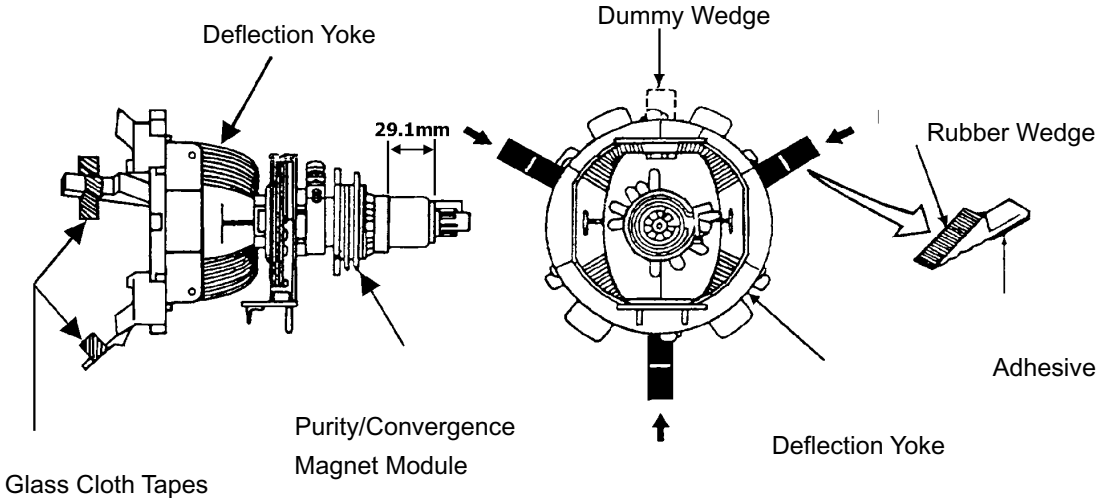
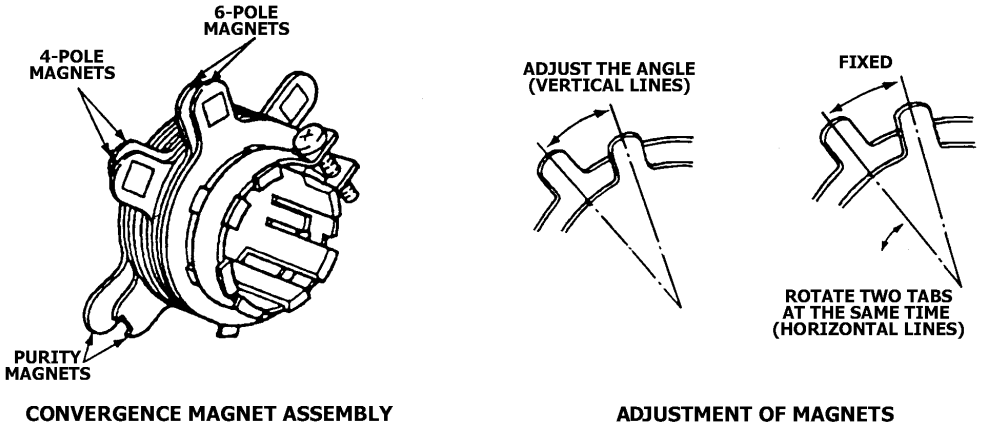


Fig. 18



CONVERGENCE MAGNET ASSEMBLY **ADJUSTMENT OF MAGNETS**

Fig. 19

2. Convergence Adjustment

Note:

Before attempting any convergence adjustment, the TV should be operated for at least 15 minutes.

Center convergence adjustment

1) Receive the crosshatch test pattern.
2) Set the brightness and contrast properly.
3) Adjust two tabs of the 4-pole magnet to change the angle between them and red and blue vertical lines are superimposed on the center area of the screen.
4) Turn both tabs at the same time keeping the angle constant to superimpose red and blue horizontal lines on the center of the screen.
5) Adjust two tabs of 6-pole magnet to superimpose red/blue line and green line. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6) Repeat steps 3) 5) keeping in mind red, green and blue movement. 4-pole magnet and 6-pole magnet interact each other, resulting in complicating and dot movement.

Circumference convergence adjustment

1) Loosen the clamping screw of the defection yoke slightly to allow it to tilt.
2) Temporarily put a wedge as shown in Fig.18. (Do not remove cover paper on adhesive part of the wedge.)
3) Tilt front of the deflection yoke up or down to obtain better convergence in circumference.
   Push the mounted wedge into the space between the CRT and yoke to fix the yoke temporarily.
4) Put other wedge into bottom space and remove the cover paper to stick.
5) Tilt front of the deflection yoke right or left to obtain better convergence in circumference.
6) Keep the deflection yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on the CRT to fix the yoke.
7) Detach the temporarily mounted wedge and put it in another upper space. Stick it on the CRT to fix the yoke.
8) After fixing three wedges, recheck overall convergence.
   Tighten the screw firmly to fix the yoke and check if the yoke is fixed.

9) Stick three adhesive tapes on wedges as shown in Fig. 18.

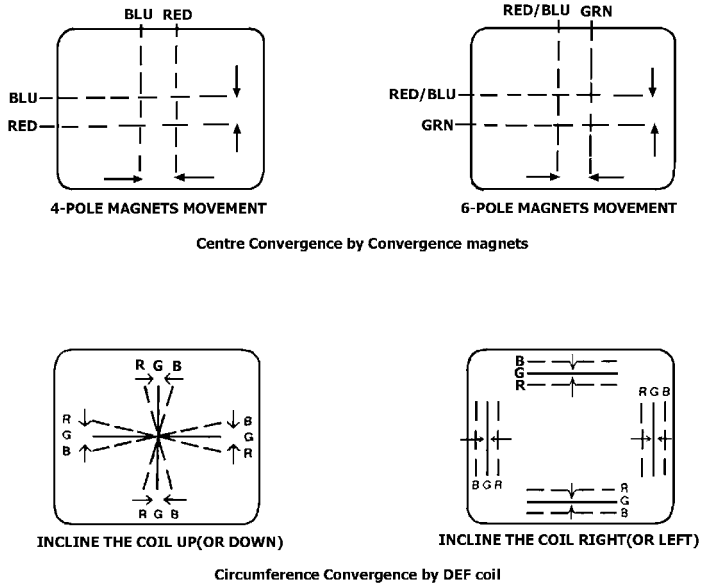


Fig. 20

Circuit Adjustments

1. General Description

All adjustments are thoroughly checked and corrected before the TV outgoing. Therefore the TV should operate normally and deliver proper colour pictures upon installation. However, several minor adjustments may be required depending on the particular location where the TV is operated.

This TV is shipped completely in carton. Carefully take out the TV from the carton and remove all packing materials. Connect the power cord into a 120V AC, 60Hz two-pin power outlet. Turn on the TV. Check and adjust all the customer controls such as brightness, contrast and colour to obtain natural colour pictures.

2. Automatic Degaussing

A degaussing coil is mounted around the CRT so that external degaussing after moving the TV is generally unnecessary, providing it is properly degaussed upon installation. The degaussing coil operates in about 1 second after power on. If the set is moved or faced to a different direction, the power switch must be switched off for a few minutes in order that the automatic degaussing circuit operates properly. Should the chassis or parts of the cabinet become magnetized to cause poor colour purity, use an external-degaussing coil. Slowly move the degaussing coil around the screen, the sides and front of the TV and slowly withdraw the coil to a distance of about 2m before unplug it. If colour shading still exists, perform the Colour Purity Adjustment and Convergence Adjustment procedures.

3. Supply Voltage Adjustment

Caution: +B voltage has close relation to high voltage. To avoid X-ray radiation, +B voltage should be +145V.

1) Set R801 to the mechanical center and AC power supply to 120±2V.
2) Connect a digital voltmeter to two pins of C838, and then turn on the TV.
3) Receive Philips test pattern signals.
4) Make the voltmeter read 145±0.5V.

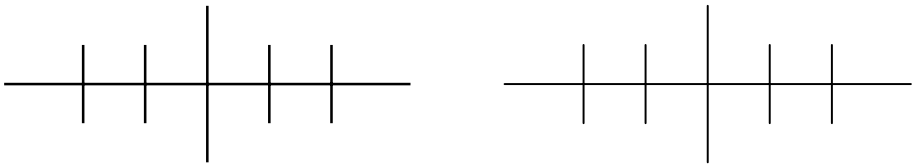
4. High Voltage Inspection

Caution: No high voltage adjustment should be done in the chassis.

1) Connect a precise high voltmeter to the second anode of the CRT.
2) Turn on the TV and set the brightness and contrast to minimum (i.e. set beam current of the CRT to zero).
3) The high voltage tested should be 29±0.5KV(for 25” TV) or 30±0.5KV(for 29” TV)
4) Set the brightness to minimum or maximum, and ensure high voltage not beyond limitation of 30KV (For 25” TV) or 33KV (For 29” TV) in any case.

5. Focus Adjustment

1) Use the remote control to set the contrast to maximum and the brightness, chroma to medium.
2) Set H. V. lines near Philips pattern center to thinnest with the FCB on the FBT. After finishing adjustment, ensure that no poor focusing exists near the center or around of the frame.



Before Adjusting　　After Adjusting

Service Mode and Bus Data

1. How to Enter the SERVICE Mode with the Remote control.

Decrease the volume to 00. Press the MUTE button on the remote control and “Mute”appears on the TV screen. Then press and hold the MUTE button on the remote control and MENU on the TV at the same time for 3 seconds and the TV enters the S mode.

Press the or button to select data in turn and or button to decrease or increase data. Press the button on the remote control or MAIN POWER SWITCH button on the TV to exit from the mode.

Description	Data	Description	Data	Description	Data	Description	Data	Description	Data
AFW:240KHz	1	De interta	0	S CORRECT	20	AUTO ADJUST	0	OPT SPKON	0
IF-PLL	1	H shift	40	V SHIFT	32	SUB BRIGHT	27	OPT SPATAL	1
AGC over f	9	H shift-50	32	V SHIFT-50	32	LOUDNESS	18	OPT COLOR	0
IFS	0	E/W WIDE	45	V 200M	25	CNTRST MAX	52	OPT V-CHIP	1
MOD	0	PARABOLA	32	V SCROLL	31	CONTRST MID	21	OPT CCD	1
Fixed Avd	1	E/W CORNER	63	V HALF	0	CNTRST MIN	0	OPT PWR-ON	1
Sound Mute	0	TRAPZIUM	23	SPK PRESCL	55	COLOR CORE	31	SRCH SPEED	0
Auto Limit	0	OSDH POS	13	AV PRESCAL	66	SPATIAL	32	ROM CORREC	0
VOLUME	0	V CENTER	31	ST SPECTRL	31	SUB TINT	31		0
Blank HOB	0	V AMP	30	ST TIM CVR	7	OPT STEREO	1		

2. DS01 DS02 Door Turnover Control

	DS01			DS02		
	9	10	11	9	10	11
TV	H	H		L	L	H
AV1	H	H		L	L	H
AV2	L	L		L	H	L
AV3	L	L		H	L	L
S-VIDEO	L	L		H	L	L

3. Bus data (for MCR61TF30 only)

Item	Description	Bus data	Remarks
MENU 00	**IF**		
AFW:240KHZ	AFC window 0=125KHz 1=275KHz	1	
IF-PILL:	IF-PILL frequency	1	
AFA:Inside	AFC window 0=Outside 1=Inside (output)	1	Changeable
AFB:Below	AFC reference level 0=Below 1=Above (output)	1	Changeable
AGC over f	RF AGC	7	Set to the optimal mode
IFS	IF sensitivity 0=Normal 1= 20dB loss	0	
MOD	Modulation mode: 0=Negative 1=Positive	0	
MENU 01	**Audio**		
Fixed Aud.	0=Adjustable volume 1=Fixed volume	1	
Sound Mute	0=Not mute 1=Mute FM demodulation	0	
Auto Limit	Auto volume adjustment 0=Disable (limited to 8841/42/46)	0	
FLNG1	Language options	0	
FLNG2	000 English, French, Spanish	0	
FLNG3	Other options are available for TVs to South America.	0	
OPT.STEREO	1: AV stereo (TDA9859) 0: AV mono	1	
OPT.SPATAL	Surround: 1=Yes 0=No	1	
OPT.S-VHS		1	0 for other mode
MENU 02	**Horizontal scan**		
Blank HOB	Upper and lower useless parts of 16:9 image blanked 0=Disable	0	
De interla	0=Interlace 1=Non-interlace	0	
H shift	Horizontal center (vertical frequency: 60Hz)	45	Set to the optimal mode
H shift-50	Horizontal center (vertical frequency: 50Hz)	31	
E/W WIDE	Horizontal amplitude	41	Set to the optimal mode
PARABOLA	East-West pincushion correction	27	Set to the optimal mode
E/W CORNER	Quadricorn correction	39	Set to the optimal mode
TRAPZIUM	Trapezoidal distortion	40	Set to the optimal mode
OSD H.POS	OSD horizontal position	3	
MENU 03	**Vertical scan**		
VER MODE:	0=Auto/60Hz 1=60Hz compulsory 2=Auto/hold	0	

(continued)

VER OUT:	0=Normal 1=Vertical scan off	0	
OVERSCAN:		1	
VER Protec		0	
BLANK FIX	Vertical blanking: 0=50/60HZ adaptive 1=50HZ compulsory	0	
VER Dividr	Vertical frequency divider 0=Normal 1=Wide range sync	0	
MENU 04	**Vertical output**		
V HALF	1=Only first half vertical scan	0	
V CENTER	Half vertical center (vertical frequency: 60Hz)	31	Set to the optimal mode
V CENTER50	Half vertical center (vertical frequency: 50Hz)	31	
V AMP	Vertical amplitude (vertical frequency: 60Hz)	31	Set to the optimal mode
V AMP-50	Vertical amplitude (vertical frequency: 50Hz)	31	
S CORRECT	S correction	16	
V SHIFT	Vertical center (vertical frequency: 60Hz)	31	Set to the optimal mode
V SHIFT-50	Vertical center (vertical frequency: 50Hz)	31	
V ZOOM	Vertical amplitude compensation for 16:9 and 4:3	25	
V SCROLL	Center shift when 16:9 shifted to 4:3	31	
MENU 05	**RGB**		
WHIT P RED	Red bright balance	31	
WHIT P GRE	Green bright balance	31	Set to the optimal mode
WHIT P BLU	Blue bright balance	31	Set to the optimal mode
AKB	Auto white (dark) balance	1	
Y-Delay	0ns~320ns step40ns(9 steps unchangeable in event of even)	8	
Cathod Lev	Monochrome peak voltage: 57~107V	5	
MENU 06	**Brightness channel**		
BLUE Stret	Blue level stretch: 1=On	1	
BLACK stret	Black level stretch: 1=On	1	
Y-VALUE	Brightness channel gain: 0=Normal 1=High	0	
SKIN ANGLE	Skin tone correction angle: 0=123°(more red) 1=117°(more blue)	0	
SKIN TONE	Skin tone correction switch 1=On	1	
B.B LEVEL	Blue back brightness	40	
MENU 07	**Color channel**		
ACL	Auto color saturation control: 1=On	1	

(continued)

CB	Center frequency of color band pass: 0=1Fsc 1=1.1XFsc	0	
CMB	1=3 line comb filter enable (auto) 0=Disable	0	
BPS	0=Base band delay line used 1=Bypassed (auto)	0	
MAT	0=PAL/NTSC matrix 1=PAL matrix compulsory	0	
OPT.DW4MIN	1: Not degaussing again within 4 minutes after auto degaussing with power on	1	
OPT.OVPT	Over voltage protection (spot killer when power off) 1=Yes 0=No	1	
OPT.BBK	1: BBK on 0 BBK off	1	
AUTO ADJST	1: Auto adjustment	0	
MENU 08	**Analog**		
SUB BRIGHT	Sub brightness	31	
AV PRESECL	AV output amplitude (for BTSC stereo only)	75	
VOLUME		0	
CONTRST MAX	Sub contrast Max.	63	
CONTRST MID	Mid.	31	
CONTRST MIN	Min.	0	
COLOR Core	Sub saturation	31	
SUB TINT	Sub tint	28	
MENU 09	**Selector**		
BCO	AKB start-up characteristic 0=Picture displayed without delay 1=Picture displayed through inner delay	1	
XA.XB	Horizontal scan crystal oscillator: 0=TWO 3.6MHZ	0	
	1: ONE 3.6MHZ(PIN34)		
	2: ONE 4.43MHZ(PIN35)		
	3: 3.6 (PIN34)/4.43 MHZ (PIN35)		
STB	0=Standby 1=Normal	1	
POC	Sync separation 0=On 1=Off	0	
CM2.1.0	Crystal oscillator operation selection (color system selection)	0	
MENU 10	**Selector**		
VIM	Video identification mode 1=Coupled to video after switchover	1	

(continued)

STM	1=Reducing identification sensitivity during tuning in	0	
HCO	High voltage fluctuation compensation 0=Compensating vertical output 1=Compensation horizontal/vertical output	1	
EVG	Vertical protection 1=Identification and protection 0=Identification only	0	
PRD	High voltage (X-ray protection) 1=Identification and protection 0=Identification only	1	
COR	Coring: 1=On 0=Off	1	
MENU 11	**Others**		
OSO	1=Switch-off in vertical overscan function	1	
CS1.CS0	CVBS-2 OUTPUT (for TDA885X only)	0	
AST	Auto Startup 0=AUTO 1=Startup by MUCH	1	
FFI	IF-PILL time constant 0=Normal 1=Fast	0	
EBS	Expanding blue level stretch 1=ON	1	
FCO	Color killer 0=Normal 1=Not kill	0	
MENU 12	**Option switch**		
OPT.AV2	1=With AV2	1	
OPT.AV3	1=With AV3	1	
OPT.YCbCr	YUV component input 1 Yes 0=No	0	
OPT.COLOR	Color system 0=NTSC 1=PAL M/N—NTSC	1	
OPT.V-CHIP	V-CHIP 1=Yes	1	
OPT.CCD	CCD 1=Yes	1	
OPT.PWR-ON	0=Soft on 1=Instant on	0	
SRCH SPEED	0=Slow search 1= Fast search	0	
ROM CORREC	ROM correction (fixed to 0)	0	
MSP/TDA	1 BTSC(MSP3440) 0=STEREO/ MONO	0	

Notes: (1) For MCR68TF800 and MCR68420, OPT.AV3 should be changed to 0, POT.DVD should be changed to 1; For MCR66R400, OPT.SHS should be changed to 0.

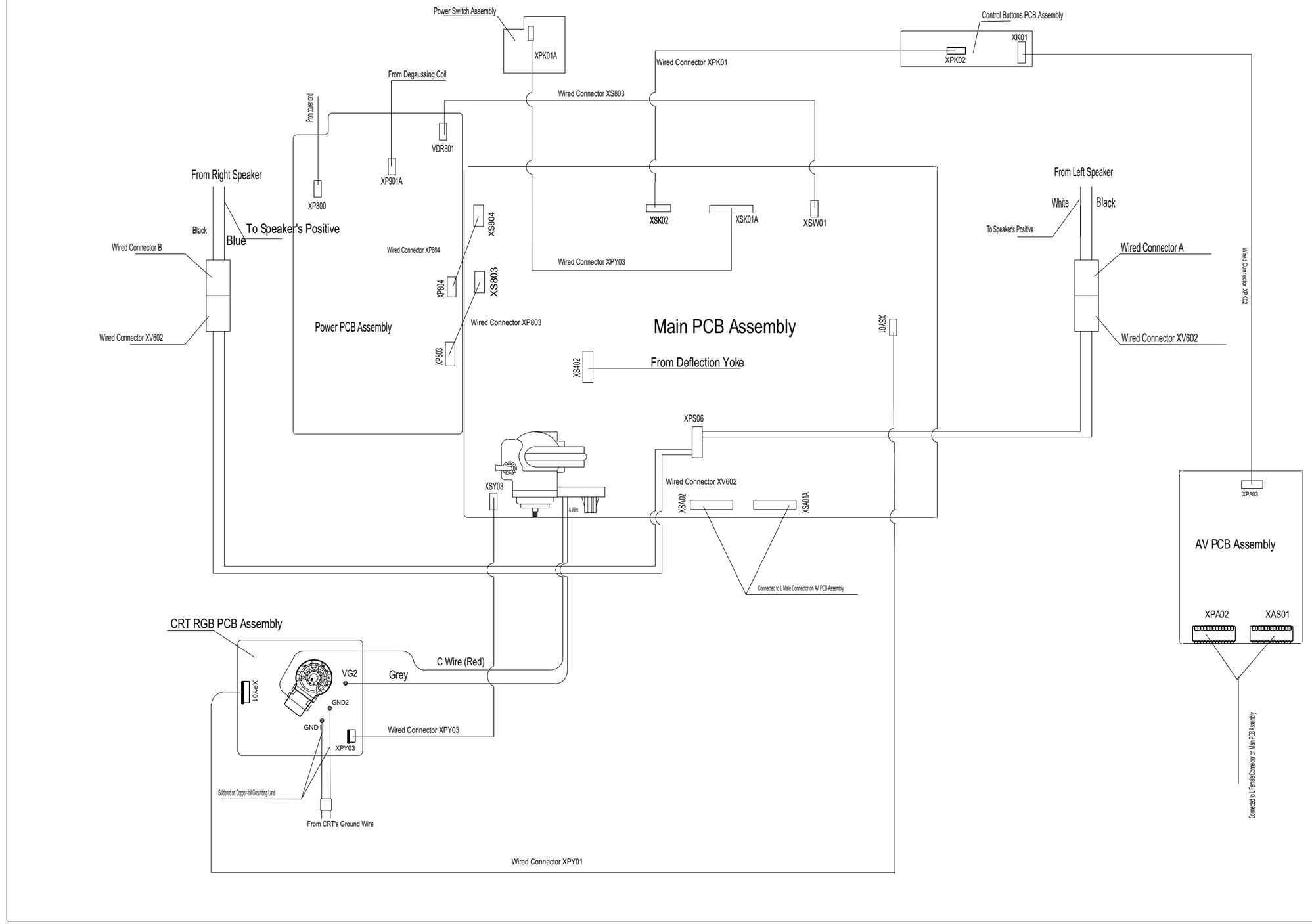
(2) The data sheet may differ dependent on different modes.

(3) The data sheet may differ dependent on different CRTs for the same model.

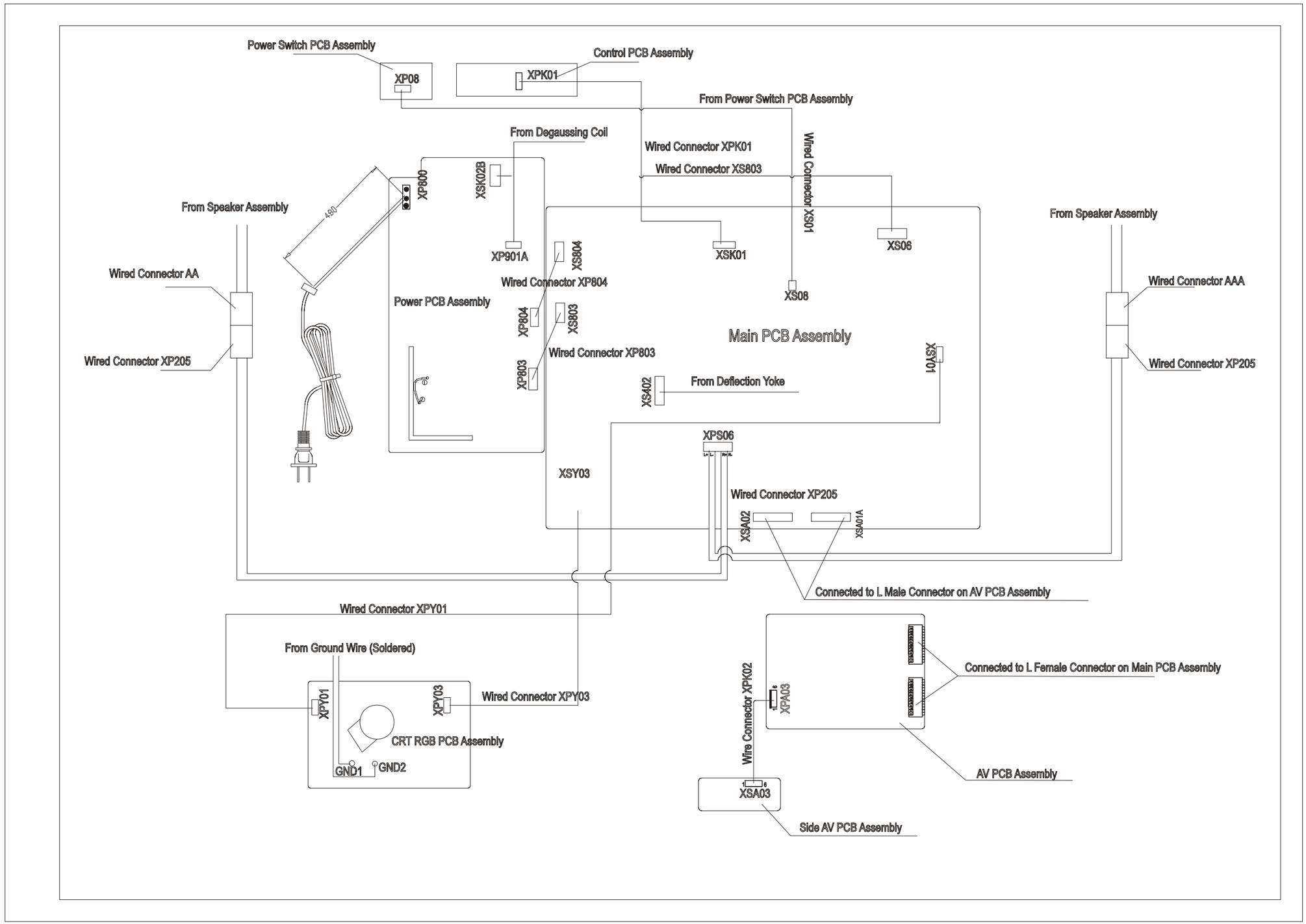
(4) Do not adjust I^2C data with the remote jig unless necessary.

(5) The remote jigs on neighboring work position cannot affect each other.

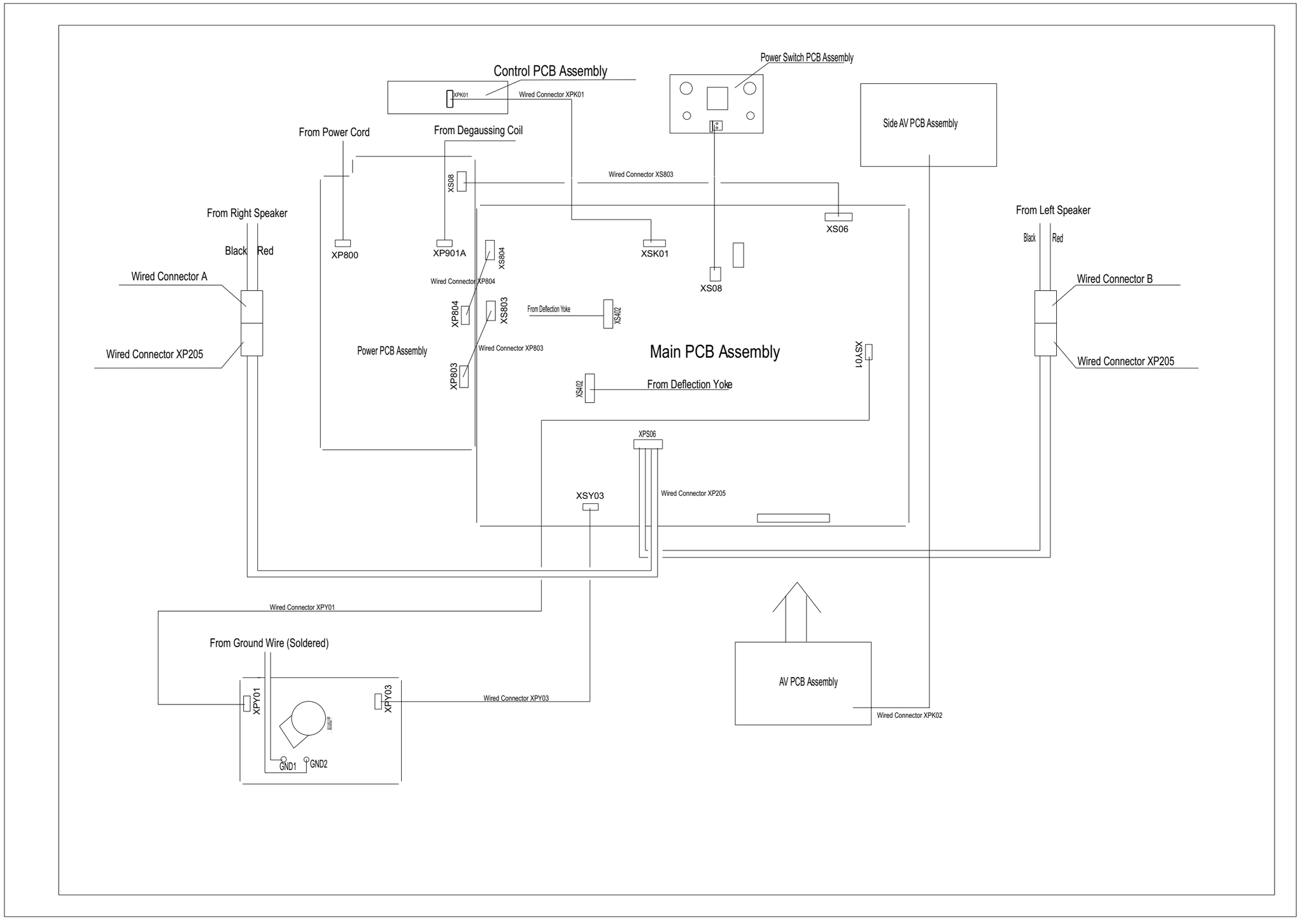
FINAL WIRING DIAGRAM FOR MCR61TF30



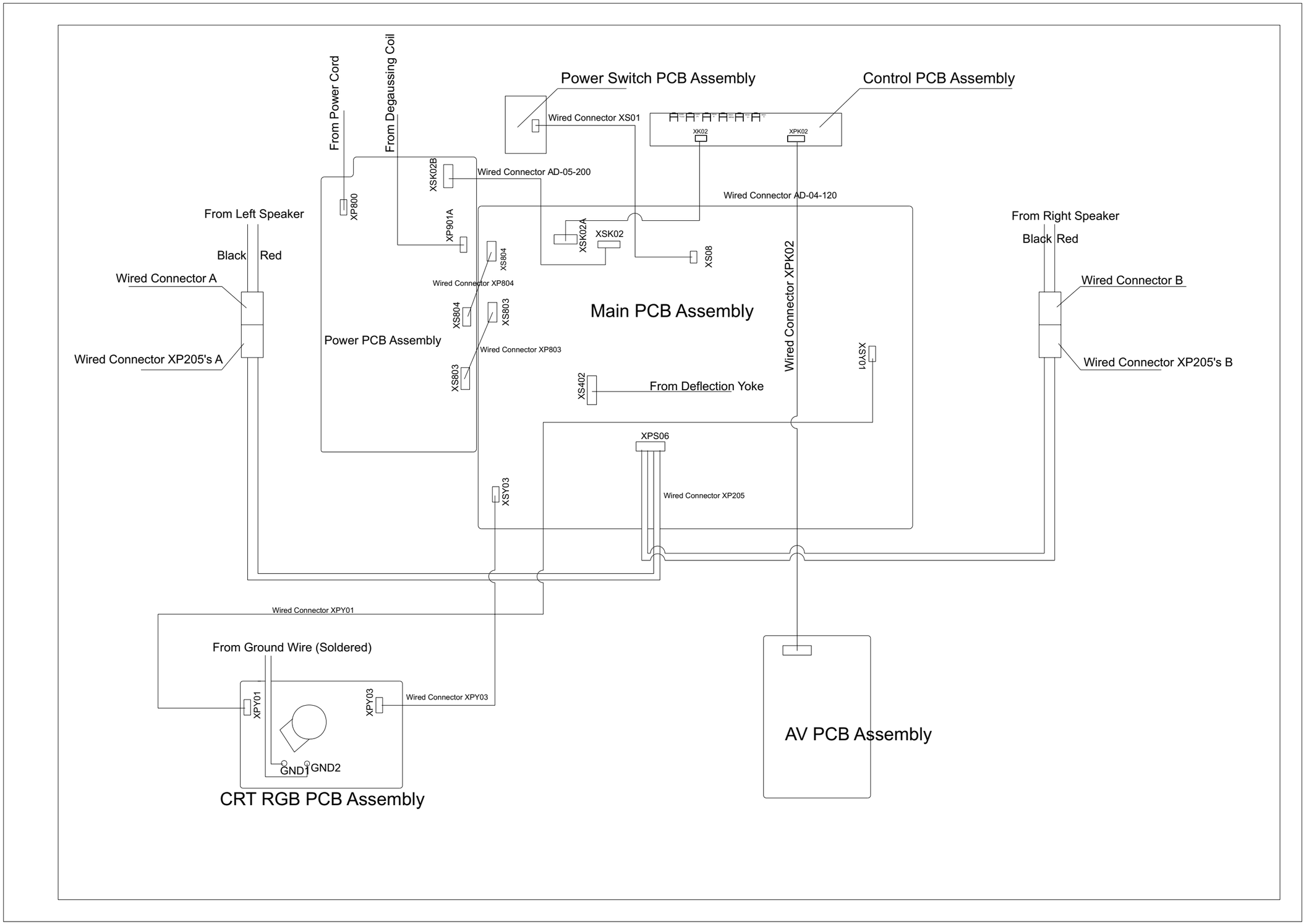
FINAL WIRING DIAGRAM FOR MCR66R400



FINAL WIRING DIAGRAM FOR MCR68R420



FINAL WIRING DIAGRAM FOR MCR68TF800



JUC7.820.483-6

N606 TDA9859

N601 TDA7057AQ

N301 OM8839

N001 CH04T1009

N401 TDA8350

N002 AT24C08

A101 TDQ-6F2M

T402 BSC70E2

TO Y BOARD XSY03 6PP

TO SPEAKER XPS06 4PP

TO POWER BOARD XSB03 5PP

TO POWER BOARD XSB04 7PP

TO DEFLECT XS402 5PP

IIC-BUS XS501 5PP

TO AV BOARD XSA01 12PP

TO AV BOARD XSA02 15PP

TO Y BOARD XSY01 7PP

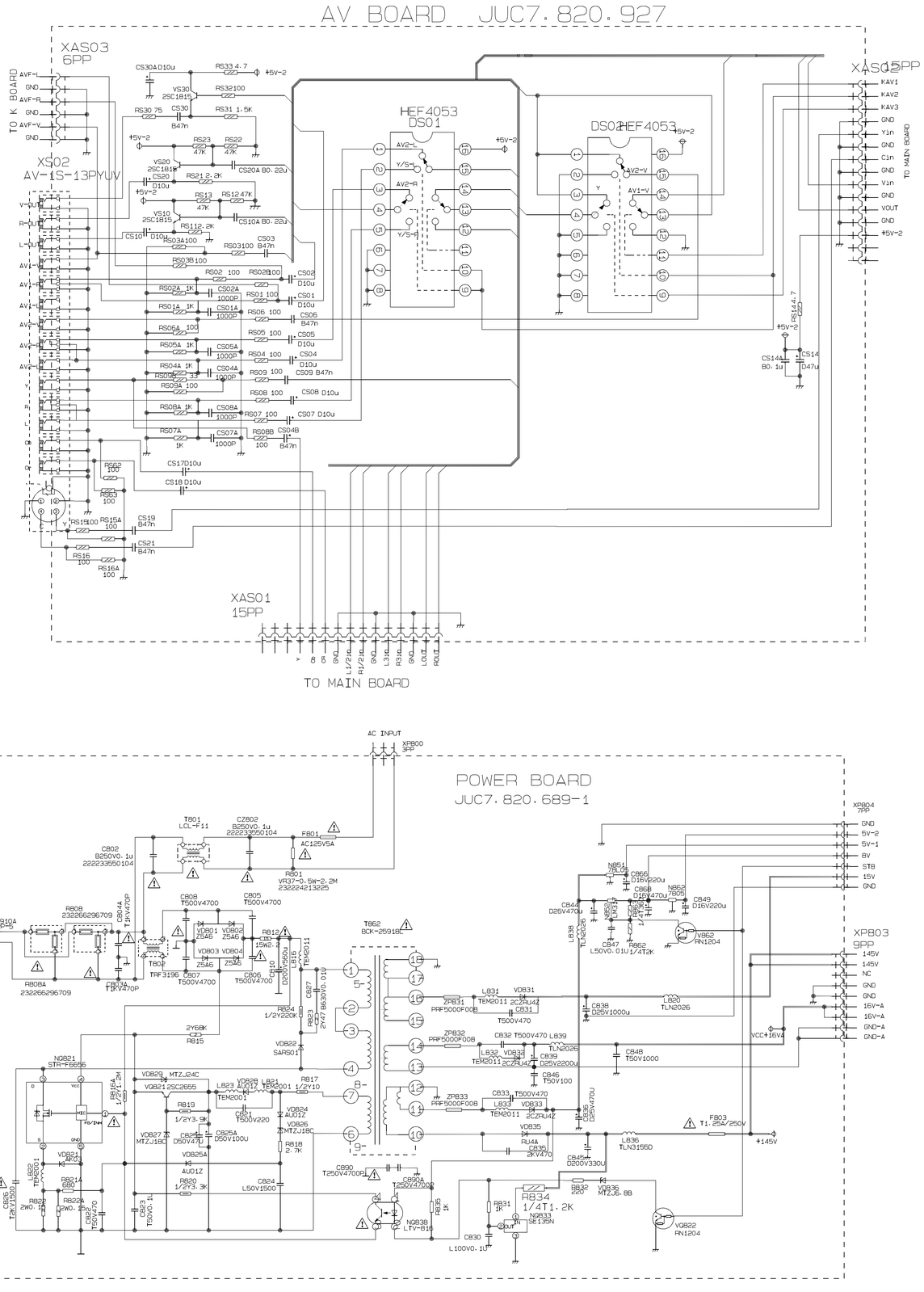
TO KEY BOARD XSK02 4PP

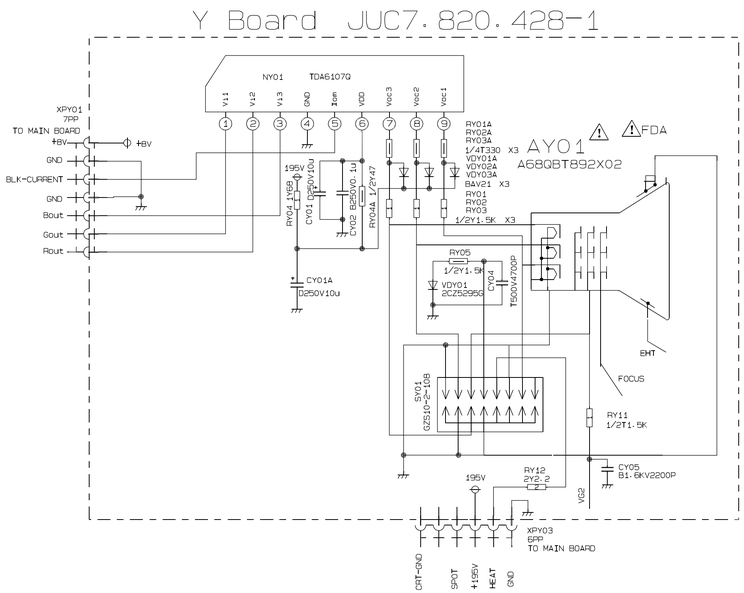
TO IR BOARD XS502 6PP

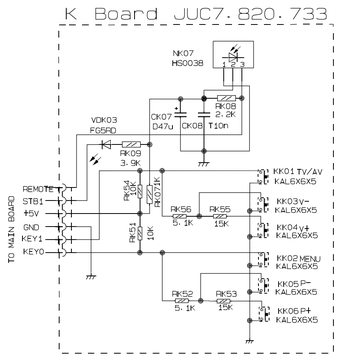
1. Any components identified by ⚠ have special safety-related characteristics.
   Use replacement components which have the same characteristics as the original parts.
2. ⏚ Cold ground ⊥ Hot ground
3. ⚠ FDA This symbol tells you that replacement components related to high voltage, beam current and X-ray radiation should not be made at will.

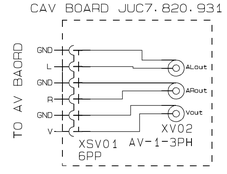
This circuit diagram is only for reference.
Specifications are subject to change without notice.

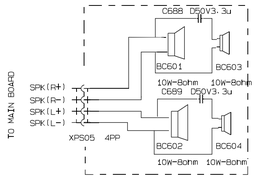
MCR68R420 (Main Diagram)
Chassis : CH-10C5











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MCR68R420
(A/V I/O Board, Kine Board, Power Supply and others)
Chassis : CH-10C5

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